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FINAL INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION AT OPERABLE UNIT 4 (OU 4) NTC ORLANDO FL
5/12/1997
ABB ENVIRONMENTAL

ABB

May 12, 1997 8545.324

Commanding Officer
SOUTHNAVFACENGCOM
P.O. Box 190010
2155 Eagle Drive
N. Charleston, SC 29419-9010

Attn: **Mr. Wayne Hansel, P.E., Code 18B7**

Subject: Final Interim Remedial Action Focused Field Investigation Report
Operable Unit 4 (OU4)
NTC, Orlando, Florida
Contract: N62467-89-D-0317/CTO 107

Dear Wayne:

Enclosed please find a copy of the subject report for your use. This document contains a signed and sealed page as requested in the Florida Department of Environmental Protection letter dated December 9, 1996.

This document is also fully responsive to the US Environmental Protection Agency's (EPA) comment letter dated April 8, 1997. Although the comments have been incorporated appropriately, they do not change the original intent of the draft document. The EPA comment letter also questioned the input data that was used for the Preliminary Risk Evaluation (PRE) that is included as Appendix A. The PRE was preformed using original screening data, not data generated as part of the Focused Field Investigation (FFI). Sampling analytical reports supporting the PRE will be submitted to the USEPA via separate correspondence.

Should you have any questions concerning this document, please call me at (407) 895-8845.

Very Truly Yours,
ABB ENVIRONMENTAL SERVICES, INC.

John Kaiser

John P. Kaiser,
Installation Manager

cc: Barbara Nwokike (SDIV)
Nancy Rodriquez (EPA)
John Mitchell (FDEP)
Lt. G. Whipple (NTC)
Mac McNeil (Bechtel)
Steve McCoy (Brown & Root)
Mark Salvetti (ABB-ES)
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INTERIM REMEDIAL ACTION

FOCUSED FIELD INVESTIGATION REPORT
OPERABLE UNIT 4

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89D-0317/107

MAY 1997

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

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INTERIM REMEDIAL ACTION
FOCUSED FIELD INVESTIGATION REPORT
OPERABLE UNIT 4

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

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Naval Facilities Engineering Command
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Barbara Nwokike, Code 1873, Remedial Project Manager

May 1997

This Interim Remedial Action Focused Field Investigation Report, Operable Unit 4, for the Naval Training Center, Orlando, Florida (dated May 1997) has been prepared under the direction of a Florida-registered Professional Geologist. The work and professional opinions rendered in this document were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

P. Greg Mudd, P.G.

Professional Geologist
License No. 1521
Expires July 31, 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: May 6, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Salvetti
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense (DOD) initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Base Realignment and Closure (BRAC) cleanup program. This program complies with the Base Closure and Realignment Act of 1988 (Public Law (P.L.) 100-526, 102 Statute 2623) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510, 104 Statute 1808), which require the DOD to observe pertinent environmental legal provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the 1992 Community Environmental Response Facilitation Act; Executive Order 12580; and the statutory provisions of the Defense Environmental Restoration Program, the National Environmental Policy Act (NEPA), and any other applicable statutes that protect natural and cultural resources.

CERCLA requirements, in conjunction with corrective action requirements under Subtitle C of the Resource Conservation and Recovery Act (RCRA), govern most environmental restoration activities. Requirements under Subtitles C, D, and I, of RCRA, as well as the Toxic Substances Control Act, the Clean Water Act, the Clean Air Act, the Safe Drinking Water Act, and other statutes, govern most environmental mission or operational-related and closure-related compliance activities. These compliance laws may also be applicable or relevant and appropriate requirements for selecting and implementing remedial actions under CERCLA. NEPA requirements govern the Environmental Impact Analysis and Environmental Impact Statement preparation for the disposal and reuse of BRAC installations.

The BRAC program centers on a single goal: expediting and improving environmental response actions to facilitate the disposal and reuse of a BRAC installation, while protecting human health and the environment.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM); the U.S. Environmental Protection Agency; and the Florida Department of Environmental Protection collectively coordinate the cleanup activities through the BRAC Cleanup Team, called the Orlando Partnering Team in Orlando. This team approach is intended to foster partnering, accelerate the environmental cleanup process, and expedite timely, cost-effective, and environmentally responsible disposal and reuse decisions.

Questions regarding the BRAC program at Naval Training Center, Orlando should be addressed to the SOUTHNAVFACENGCOM BRAC Environmental Coordinator, Mr. Wayne Hansel, Code 18B7, at (407) 646-5294 or SOUTHNAVFACENGCOM Engineer-in-Charge, Ms. Barbara Nwokike, Code 1873, at (803) 820-5566.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division Naval Facilities Engineering Command, has prepared this Focused Field Investigation Report for the Interim Remedial Action (IRA) located at Operable Unit 4 (Area C), Naval Training Center, Orlando, Florida. This report was prepared under the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Contract No. N62467-89-D0317 as Contract Task Order No. 107.

The objectives of the focused field investigation were to support the project logic diagram established in the IRA Focused Field Investigation Workplan, which included (1) defining the extent of contamination in Lake Druid's surface water and sediment, (2) evaluating the source of volatile organics in Lake Druid, (3) delineating the horizontal and vertical extent of volatile organic compounds (VOCs) contaminants in the groundwater along the lakeshore, (4) collecting physical characteristics of the lake, and (5) supporting a focused IRA to mitigate VOCs in Lake Druid. In order to meet the proposed objectives, a field program was initiated that included surface water and sediment sampling, collection of groundwater samples within the surficial aquifer using direct push technology (DPT), monitoring and drive point well installation and sampling, and a site hydrogeologic characterization study.

The analytical program for the investigation included onsite laboratory analyses for 10 target VOCs using a gas chromatograph. A minimum of 10 percent of the groundwater, and sediment and surface water samples, was submitted to an offsite laboratory for confirmatory analysis of VOCs using Contract Laboratory Program methods.

Results of the DPT groundwater investigation indicate that the width of the groundwater VOC plume extends approximately 500 feet from just south of the north fenceline down the shoreline of Lake Druid. VOCs were detected in groundwater at depths ranging from 4 to 68 feet below land surface, and include chlorinated solvents, such as vinyl chloride (VC), dichloroethene (DCE), trichloroethene (TCE), and tetrachloroethene (PCE).

Chlorinated VOC contaminants (VC, DCE, TCE, PCE) were also identified in the drive point well samples, as well as the sediment and surface water samples. Sediment and surface water samples were collected and VOCs delineated from within the creek, along the shoreline, and out into Lake Druid at approximately 25-foot intervals. The "hottest" areas of contamination were concentrated in the area around the creek's mouth. The six drive point wells, installed near the shoreline, in the creek, and out in the lake, were screened into the subsurface just below the sediment bottom of the lake. The drive point wells indicated groundwater contaminated with the target chlorinated compounds just below the lake's sediment bottom.

The sampling results together with some of the hydrogeologic results, such as the drive point wells measuring an upward vertical potential around the lake, indicate that a source for Lake Druid's VOC contamination is groundwater. Based on these results, the recommendation for this IRA is to submit a Focused Feasibility Study. The study will target controlling the highly contaminated portion of the groundwater plume from entering Lake Druid.

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Orlando, Florida

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Orlando, Florida

<u>GLOSSARY</u>

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
BRAC	Base Realignment and Closure (Act)
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
CLP	Contract Laboratory program
cm/sec	centimeters per second
CRQL	contract-required quantitation limits
CWA	Clean Water Act
DCE	dichloroethene
DPT	direct push technology
DRMO	Defense Reutilization and Marketing Office
°C	degrees Celsius
°F	degrees Fahrenheit
EBS	environmental baseline survey
ELCD	electrolytic conductivity detector
ETP	engineering treatability parameters
FDEP	Florida Department of Environmental Protection
ft/day	feet per day
FID	flame ionization detector
GC	gas chromatograph
GC/MS	gas chromatography and mass spectroscopy
GPS	Global Positioning System
ID	inside diameter
IDW	investigation-derived wastes
IRA	Interim Remedial Action
lb/in^2	pounds per squared inch
MCL	maximum contaminant level
mg/ℓ	milligrams per liter
$m\ell$	milliliter
MS/MSD	matrix spike and matrix spike duplicate
$\mu g/kg$	micrograms per kilogram
$\mu g/\ell$	micrograms per liter
mV	millivolts
NEESA	Naval Energy and Environmental Support Activity
NTC	Naval Training Center
O_2	oxygen
OD	outside diameter
OU	operable unit

GLOSSARY (Continued)

PCE	tetrachloroethene
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
QA/QC	quality assurance and quality control
QC	quality control
RPD	relative percent difference
SA	site assessment
SCM	site conceptual model
SDWA	Safe Drinking Water Act
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SOW	statement of work
TCE	trichloroethene
TCL	target compound list
TOC	top of casing
USEPA	U.S. Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 PURPOSE. ABB Environmental Services, Inc. (ABB-ES), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), has prepared this Focused Field Investigation Report for Operable Unit (OU) 4, Former Dry Cleaning and Laundry Facility, at the Naval Training Center (NTC), Area C, in Orlando, Florida. The purpose of this document is to report the results of the focused field investigation supporting the project logic diagram in the work-plan, refine the site conceptual model, and make recommendations for an interim remedial action (IRA).

1.2 SITE DESCRIPTION.

1.2.1 Site Location and Description Area C (Figures 1-1 and 1-2) occupies 46 acres and is located approximately 1 mile west of the Main Base off Maguire Boulevard. Area C serves as a supply center for NTC, Orlando and includes a laundry and drycleaning facility, which is now closed, and the Defense Reutilization and Marketing Office (DRMO). It is surrounded by urban development, including single- and multifamily residential developments to the north and south, Lake Druid to the west, and an office park to the east. There are no industrial facilities adjacent to Area C.

OU 4 is composed of Area C and Study Areas (SAs) 12, 13, and 14 (Figure 1-2). This field investigation focused on approximately 6 acres of Area C property west of SA 13, including the eastern shore area of Lake Druid. Four of these acres were densely vegetated with large trees and heavy undergrowth. The remaining 2 acres are classified as Palustrine wetland by the U.S. Department of the Interior, Fish and Wildlife Service. This included a buffer strip along Lake Druid approximately 150 feet wide, which was defined by a March 1996 walkover of the area by the St. Johns River Water Management District. This buffer strip was also heavily vegetated. Greater detail can be found in Chapter 1.0 of the Area C Preliminary Risk Evaluation (PRE) (Appendix A).

1.2.2 Site History Building 1100 was constructed in 1943 and is a single-story wood-framed structure that was always used as an industrial laundry and dry-cleaning facility, serving the entire military base. The surrounding property is paved asphalt, except for small areas east and west of the building that are landscaped and grass covered. The paved areas around the perimeter of the building include roads and parking lots. Prior to construction of the facility in 1943, the land was undeveloped. The laundry was closed in the fall of 1994.

Reportedly, hazardous materials generated and used in the drycleaning process were poorly managed. At the time of the environmental base survey (EBS), there were reportedly many containers in the building, ranging in volume from ½ to 55 gallons, that were open and not labeled. The facility received a Notice of Violation and a citation from Florida Department of Environmental Protection (FDEP) for unlabeled and unmanifested waste. Wastewater from the laundry machines discharged to the sanitary sewer through badly deteriorated drainage trenches in the floor. The floor trenches discharged to a single pipe connected to a settling and surge tank. Due to the volume of water discharged to the sewer by the laundry machines, a 30,000-gallon surge tank was installed in the mid-1960s. Sludge was removed from this tank annually and disposed of by the DRMO. Waste filters from

FIGURE 1-1
SITE LOCATION MAP

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SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

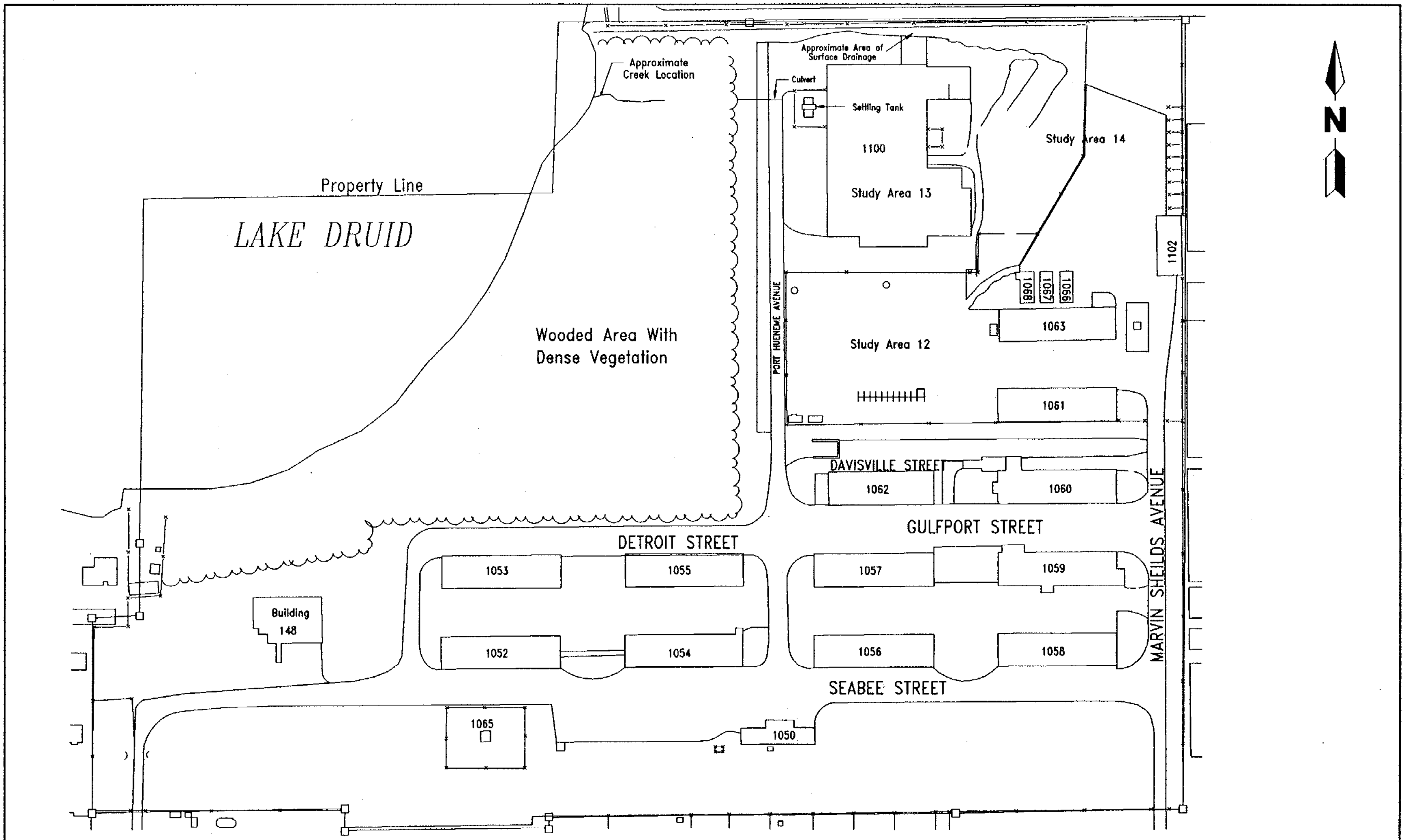

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FIGURE 1-2
MAP OF AREA C

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

the drycleaning machines were also generated at the facility. Tetrachloroethene (PCE) was separated from the water and filters by heating the assemblies in a pressure cooker. The filters were disposed of through the DRMO and the solvent recycled. In the past, the filters were allegedly disposed of in the North Grinder Landfill (ABB-ES, 1994b).

Reportedly, discharges of water contaminated with chlorinated solvents occurred on the property. Discharges of water from the washing machines to Lake Druid have also been reported.

Building 1100 at Area C was identified as a site where releases of hazardous materials had occurred, and designated SA 13, Group II, for subsequent site screening. The screening investigation at SA 13 was performed in the spring of 1995 in accordance with the Site Screening Work Plan (ABB-ES, 1995). SA 13 includes the NTC Former Dry Cleaning Laundry Facility (Building 1100) and the former location of a boiler house (Building 1101). SA 13 is located in the northwest corner of Area C at Port Hueneme Avenue and Davisville Street. Building 1101 was located east of Building 1100 and was demolished some time after 1962.

The site screening investigation conducted at Study Areas 12, 13, and 14 included a geophysical survey, a soil gas survey, surface and subsurface soil sampling, and the installation of 16 monitoring wells to evaluate groundwater. Twelve wells were placed to evaluate the shallow surficial aquifer and were installed to a depth of approximately 15 to 20 feet below land surface (bls). Four wells in the immediate vicinity of the laundry were screened at the base of the surficial aquifer, approximately 60 feet bls. Saturated soil samples were collected approximately every 6 feet during installation of each deep well and analyzed for volatile organic compounds (VOCs) on a field gas chromatograph (GC). Combined with the shallow and deep groundwater samples collected from the monitoring wells, the field GC data provided an evaluation over the complete thickness of the surficial aquifer.

Analytical results for the monitoring wells are summarized on Figure 1-3. PCE (up to 680 micrograms per liter [$\mu g/\ell$]) and trichloroethene (TCE) (up to 52 $\mu g/\ell$) were detected in shallow groundwater above Florida primary standards. Field GC screening of the saturated soil samples detected PCE and TCE at concentrations up to 3,770 micrograms per kilogram ($\mu g/kg$) and 1,290 $\mu g/kg$, respectively. Water level data indicated that contaminants were likely migrating toward Lake Druid. The results of the site screening investigation are provided in detail in the Site Screening Report for Study Area 13 (ABB-ES, 1996a).

Lake Druid was not included in the original site screening investigation. After reviewing the site screening data, the Orlando Partnering Team (OPT) requested that surface water and sediment samples be collected from the lake.

On November 29, 1995, surface water and sediment samples were collected along the shoreline of Lake Druid (Figure 1-4). These samples were analyzed by an offsite laboratory using U.S. Environmental Protection Agency (USEPA) Method 8010. PCE, TCE, cis-1,2-dichloroethene (cis-DCE), 1,1-DCE, and vinyl chloride (VC) were detected at these locations in concentrations as high as 6 $\mu g/\ell$, 370 $\mu g/\ell$, 1,100 $\mu g/\ell$, 1.5 $\mu g/\ell$, and 15 $\mu g/\ell$, respectively. At some locations, TCE and cis-DCE were detected in surface water at concentrations greater than had been detected in groundwater collected from the monitoring wells during site screening.

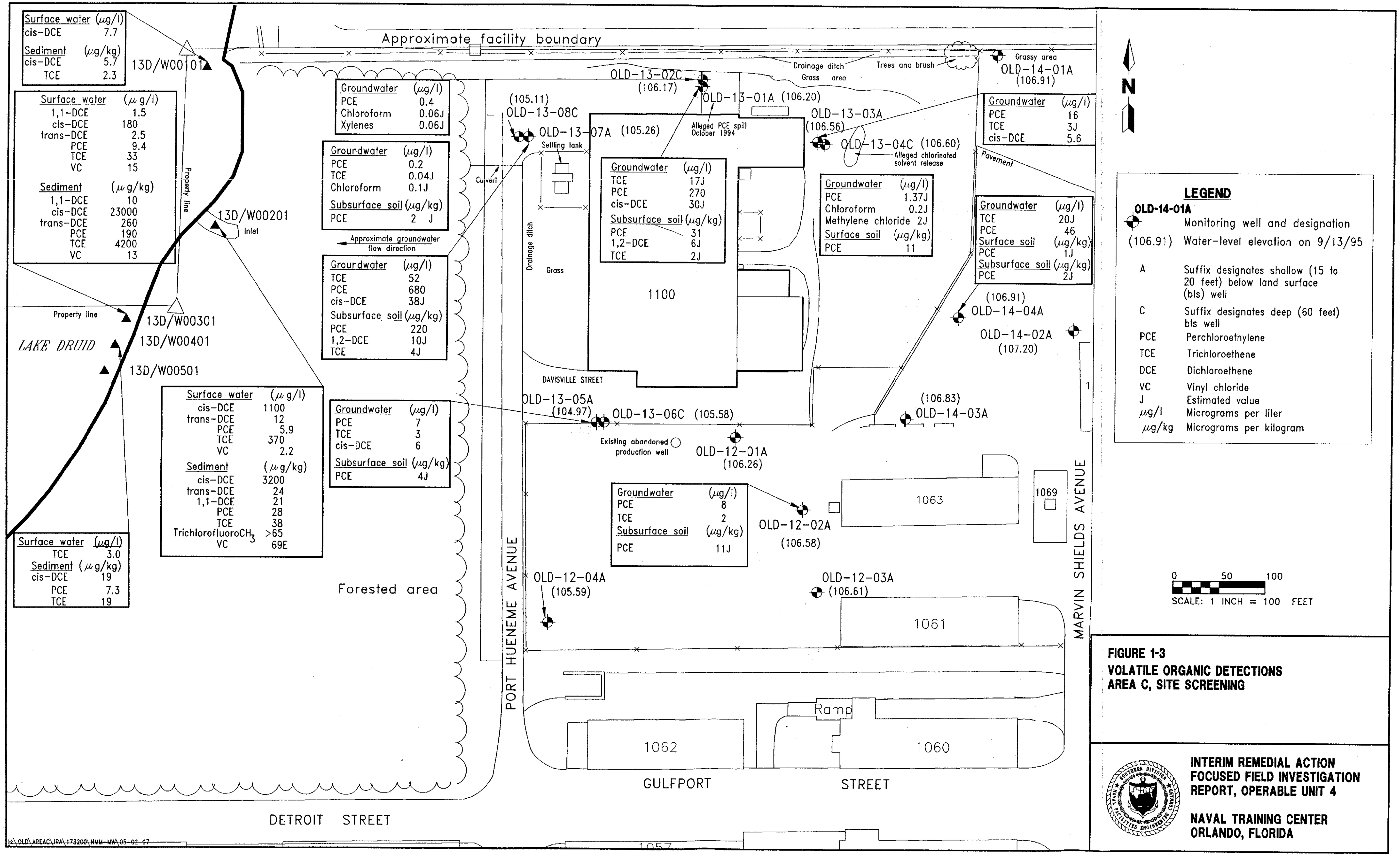

FIGURE 1-3
VOLATILE ORGANIC DETECTIONS AREA C, SITE SCREENING

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

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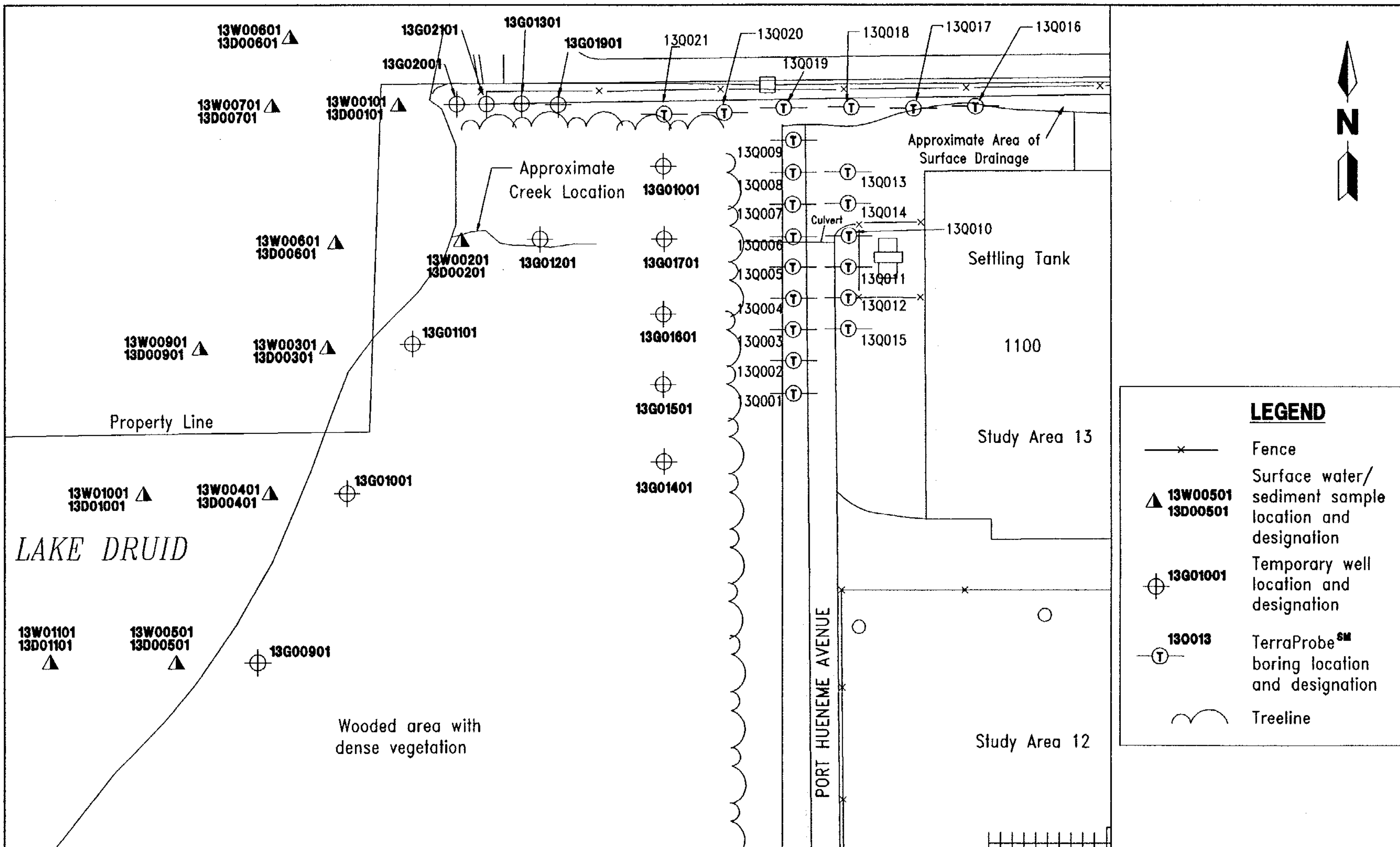

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FIGURE 1-4
SITE SCREENING SAMPLE LOCATIONS

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

As described in Florida Administrative Code 62-302, Surface Water Quality Standards, Lake Druid is a Class III surface water. Comparing surface water quality standards for a Class III body, only concentrations of TCE were above the standard. No surface water standards exist for cis-DCE or VC.

On December 11, 1995, additional surface water and sediment samples were collected in Lake Druid approximately 50 feet west of the November locations. The water depth was approximately 4 feet. Cis-DCE was detected in surface water collected from each location farther out in the lake. TCE was also detected in surface water from sample location 13D/W00801. TCE and PCE were detected in sediment from this location and from location 13W/D00901. Chlorinated solvent concentrations from the locations further out in the lake were generally lower than at the shoreline. None of the constituents detected were above surface water quality standards.

During the week of December 18, 1995, groundwater samples were collected from the area between Lake Druid and Building 1100 for further screening. Samples were collected from temporary wells installed by hand auger in the heavily vegetated areas and from TerraProbe℠ borings placed in open areas. Sample points were placed along north-south lines adjacent to Building 1100 as well as along the northern fenceline.

Samples collected from the temporary wells were limited to the water table and were screened with a portable GC and sent offsite for laboratory analysis. Samples were collected from three depth intervals at each TerraProbe℠ boring: at the water table, at approximately 18 bls, and at 30 feet bls. Analysis of the TerraProbe℠ samples included field GC and an offsite laboratory. The results of this phase of screening showed that PCE, cis-DCE, and TCE were present at elevated concentrations down to 30 feet in depth, below which samples were not taken. Figure 1-4 is a map showing the locations of all the November 1995 and December 1995 site screening locations. Tables 1-1 and 1-2 summarize the data from these screening investigations.

After OPT review of the site screening results, this IRA was initiated to determine the mechanism and source of the surface water contamination and to develop a plan to mitigate the chlorinated solvent contamination in the lake.

<u>1.3 SITE CONCEPTUAL MODEL</u>. The site conceptual model (SCM) is a framework within which the source, release mechanism(s), and environmental pathways of potential concern are identified (Figure 1-5). The SCM is best represented by the Project Logic Diagram (Figure 1-6). This diagram identified the data needs, as well as the approach to collection and evaluation of those data. This SCM identified media that would require sampling to evaluate contaminant release(s). The model also serves as a framework for conceptualizing applicable remedial technologies and focusing activities toward a solution. The model is based on the current understanding of the contaminated media and environmental pathways. Source areas are those where releases of chlorinated solvents are documented or believed to have occurred. A contaminant release mechanism is defined as a process that results in migration of a contaminant from a source area into the immediate environment. Once in the environment, contaminants can be transferred between media and transported away from the source and/or site.

Table 1-1
Site Screening: Surface Water and Sediment Sample Results

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	PCE (μg/ℓ)	TCE (μg/ℓ)	1,1-DCE (μg/ℓ)	Cis-1,2 DCE (μg/ℓ)	Trans-1,2 DCE (μg/ℓ)	Vinyl Chloride (μg/ℓ)
Surface Water						
13W00101	--	--	--	7.7	--	--
13W00201	5.9	340	--	1,100	12	2.2
13W00201D	4.7	370	--	1,100	11	1.8
13W00301	6.6	33	1.5	180	2.5	15
13W00401	--	3	--	--	--	--
13W00501	--	--	--	--	--	--
13W00601	--	--	--	4.7	--	--
13W00701	--	--	--	4.3	--	--
13W00801	--	1.2	--	5.8	--	--
13W00901	--	--	--	4.9	--	--
13W01001	--	--	--	5.3	--	--
13W01101	--	--	--	4.6	--	--
Sediment						
13D00101	--	2.3	--	5.7	--	--
13D00201	--	38	--	890	18	--
13D00201D	28	--	21	3,200	24	69
13D00301	190	4,200	10	23,000	260	13
13D00401	7.3	19	--	19	--	--
13D00501	--	--	--	--	--	--
13D00601	--	--	--	--	--	--
13D00701	--	--	--	--	--	--
13D00801	18	11	--	--	--	--
13D00901	10	44	--	37	--	--
13D01001	--	--	--	--	--	--
13D01101	--	--	--	--	--	--

Notes: The suffix "D" denotes a duplicate sample.

ID = identification.
PCE = perchloroethylene.
TCE = trichloroethene.
DCE = dichloroethene.
μg/ℓ = micrograms per liter.
"--" = compound not detected above reporting limits.

Table 1-2
Site Screening: Temporary Well and TerraProbe℠ Sampling Results

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	Depth (feet bls)	PCE (µg/ℓ)	TCE (µg/ℓ)	1,1-DCE (µg/ℓ)	1,2-DCE (µg/ℓ)	Vinyl Chloride (µg/ℓ)
TerraProbe℠ Samples						
13Q00101FGC	8	1.5	--	--	--	--
13Q00102FGC	18	--	59.3	--	--	--
13Q00103FGC	30	109.6	8.3	--	--	--
13Q00201FGC	8	--	--	--	--	--
13Q00202FGC	18	--	45.8	--	--	--
13Q00203FGC	30	24.1	23.4	--	--	--
13Q00301FGC	8	--	--	--	--	--
13Q00302FGC	18	11.2	--	--	--	--
13Q00303FGC	30	12.0	18.0	--	--	--
13Q00401FGC	8	1.7	--	--	--	--
13Q00402FGC	18	8.8	--	--	--	--
13Q00403FGC	30	167.9	277.6	--	--	--
13Q00501FGC	8	0.3	--	--	--	--
13Q00502FGC	18	50.6	--	--	--	--
13Q00503FGC	30	21.9	1059.7	--	--	--
13Q00601FGC	8	3.0	--	--	--	--
13Q00602FGC	18	17.0	29.0	--	--	--
13Q00603FGC	30	821.1	852.5	--	--	--
13Q00603	8	760	2100	--	51	--
13Q00701FGC	18	250.8	129.9	--	--	--
13Q00701	30	1600	240	--	770	16
13Q00702FGC	8	4325.8	391.1	--	--	--
13Q00702	18	270	18	--	7	--
13Q00703FGC	30	272.0	41.1	--	--	--
13Q00801FGC	8	136.3	5.1	--	--	--
13Q00802FGC	18	468.8	54.2	--	--	--
13Q00803FGC	30	23.4	7.6	--	--	--
13Q00901FGC	8	16.1	1.9	--	--	--
13Q00902FGC	18	0.8	--	--	--	--

See notes at end of table.

Table 1-2 (Continued)
Site Screening: Temporary Well and TerraProbe℠ Sampling Results

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	Depth (feet bls)	PCE (µg/ℓ)	TCE (µg/ℓ)	1,1-DCE (µg/ℓ)	1,2-DCE (µg/ℓ)	Vinyl Chloride (µg/ℓ)
TerraProbe℠ Samples (Continued)						
13Q00903FGC	30	3.0	--	--	--	--
13Q01001FGC	8	.3	--	--	--	--
13Q01002FGC	18	1346.4	51.0	--	--	--
13Q01002	18	2500	84	--	25	--
13Q01003FGC	30	1333.4	604.5	--	--	--
13Q01003	30	2000	2200	--	39	--
13Q01101FGC	8	--	--	--	--	--
13Q01102FGC	18	863.5	8.6	--	--	--
13Q01103FGC	30	952.0	98.7	--	--	--
13Q01103	30	6400	400	--	270	--
13Q01201FGC	8	4.3	--	--	--	--
13Q01202FGC	18	3.1	--	--	--	--
13Q01203FGC	30	43.2	--	--	--	--
13Q01301FGC	8	37.0	--	--	--	--
13Q01302FGC	18	0.1	0.1	--	--	--
13Q01303FGC	30	1.5	--	--	--	--
13Q01401FGC	8	1321.7	10.3	--	--	--
13Q01402FGC	18	1244.5	379.3	--	--	--
13Q01403FGC	30	73.6	7.2	--	--	--
13Q01501FGC	8	0.8	--	--	--	--
13Q01502FGC	18	4.9	--	--	--	--
13Q01503FGC	30	71.1	5.6	--	--	--
13Q01601FGC	8	1.11	0.3	--	--	--
13Q01602FGC	18	--	--	--	--	--
13Q01603FGC	30	--	--	--	--	--
13Q01701FGC	8	--	--	--	--	--
13Q01702FGC	18	--	--	--	--	--
13Q01703FGC	30	--	--	--	--	--

See notes at end of table

Table 1-2 (Continued)
Site Screening: Temporary Well and TerraProbe℠ Sampling Results

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	Depth (feet bls)	PCE (µg/ℓ)	TCE (µg/ℓ)	1,1-DCE (µg/ℓ)	1,2-DCE (µg/ℓ)	Vinyl Chloride (µg/ℓ)
TerraProbe℠ Samples (Continued)						
13Q01801FGC	8	1.4	--	--	--	--
13Q01802FGC	18	--	--	--	--	--
13Q01803FGC	30	--	--	--	--	--
13Q01901FGC	8	--	--	--	--	--
13Q01902FGC	18	--	--	--	--	--
13Q01903FGC	30	--	--	--	--	--
13Q02001FGC	8	--	--	--	--	--
13Q02002FGC	18	--	--	--	--	--
13Q02101FGC	8	--	--	--	--	--
13Q02102FGC	18	--	--	--	--	--
Temporary Well Samples						
13G00901FGC		--	--	--	--	--
13G00901		--	--	--	--	--
13G01001FGC		--	--	--	--	--
13G01001		--	--	--	--	--
13G01101FGC		--	--	--	--	--
13G01101		--	--	--	--	--
13G01201FGC		--	--	--	--	--
13G01201		--	--	--	--	--
13G01301FGC		--	--	--	--	--
13G01301		--	--	--	--	--
13G01401FGC		--	--	--	--	--
13G01401		--	--	--	--	--
13G01501FGC		--	--	--	--	--
13G01501		--	--	--	--	--
13G01601FGC		--	--	--	--	--
13G01601		--	--	--	--	--

See notes at end of table.

Table 1-2 (Continued)
Site Screening: Temporary Well and TerraProbe℠ Sampling Results

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	PCE (µg/ℓ)	TCE (µg/ℓ)	1,1-DCE (µg/ℓ)	1,2-DCE (µg/ℓ)	Vinyl Chloride (µg/ℓ)
Temporary Well Samples (Continued)					
13G01701FGC	99.8	107.7	--	--	--
13G01701	120	170	--	320	2
13G01801FGC	6.5	4.8	--	--	--
13G01801	23	14	--	34	--
13G01901FGC	--	--	--	--	--
13G01901	--	--	--	--	--
13G01901FGCD	--	--	--	--	--
13G02001FGC	--	--	--	--	--
13G02001	--	--	--	--	--
13G02101FGC	--	--	--	--	--
13G02101	--	--	--	--	--

Notes: The suffix "D" denotes a duplicate sample.
The suffix "FGC" denotes a field gas chromatograph (GC) analysis.
The field GC only analyzed for PCE, 1,2-DCE, and TCE.

-- = compound not detected above reporting limits.
SM = service mark.
ID = identification.
bls = below land surface.
PCE = perchloroethylene.
µg/ℓ = micrograms per liter.
TCE = trichloroethene.
DCE = dichloroethene.

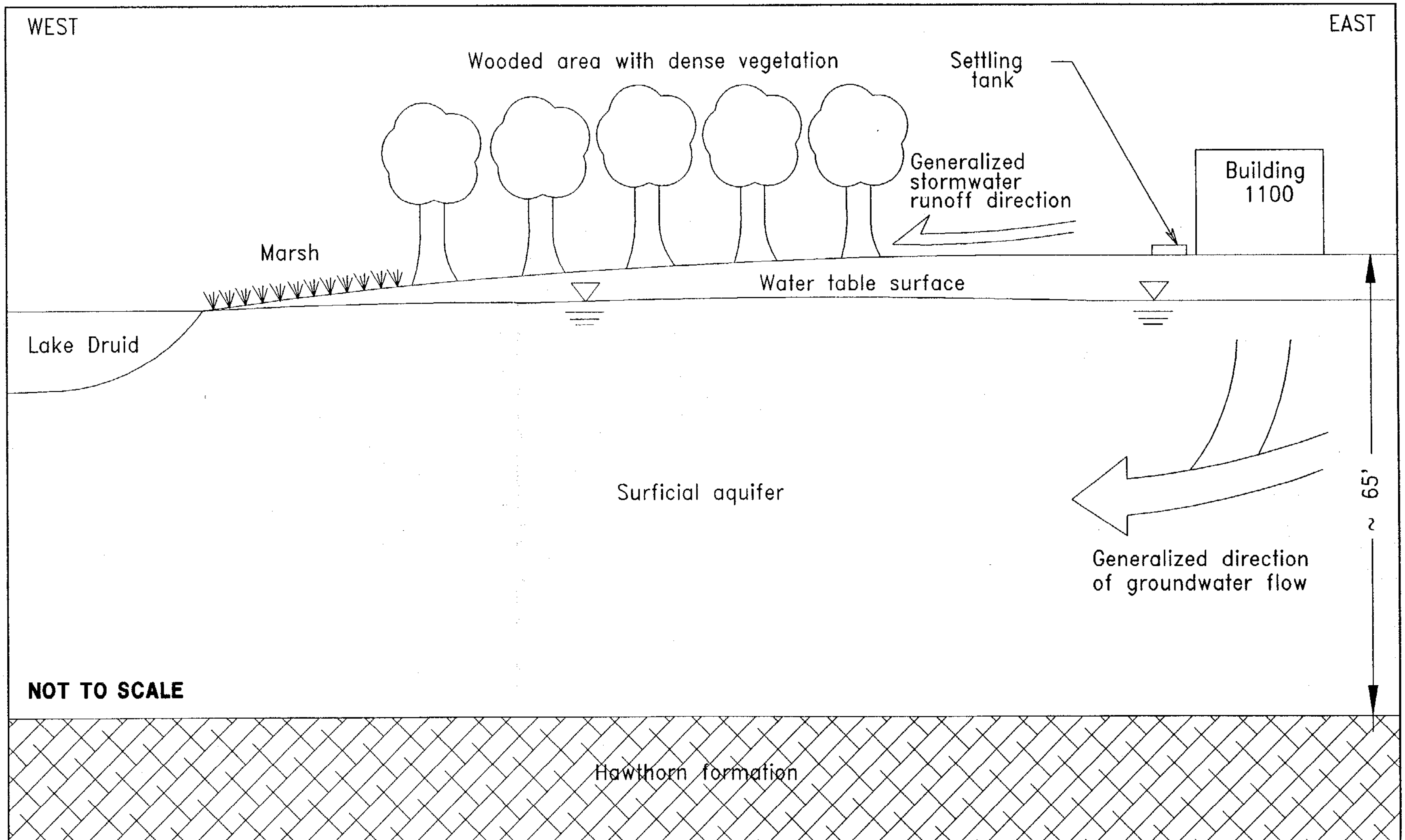

FIGURE 1-5
SITE CONCEPTUAL MODEL

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

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8545-71 FIG 1-6 FINAL 050197MAW

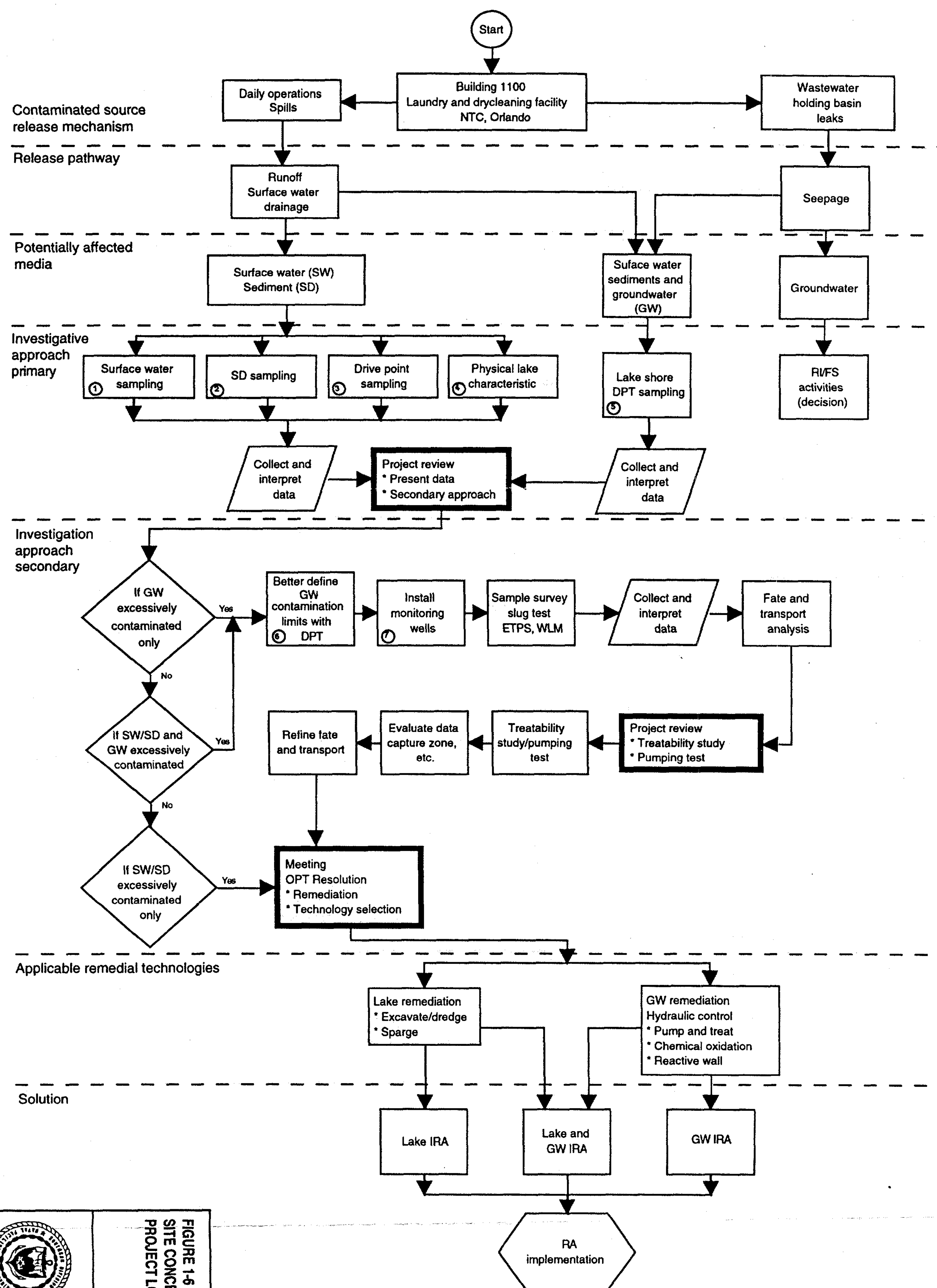

FIGURE 1-6
SITE CONCEPTUAL MODEL:
PROJECT LOGIC DIAGRAM

INTERIM REMEDIAL ACTION
FOCUSED FIELD INVESTIGATION
REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

NOTES:

- Additional meetings will be scheduled as needed
- Refer to workplan text and figures for definition of Tasks 1 through 7

NTC = Naval Training Center
RI/FS = remedial investigation/feasibility study
DPT = direct-push technology
ETPs = engineering treatability parameters
WLM = water-level measurement
IRA = initial remedial action
RA = remedial action
OPT = Orlando partnering team

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The general source area for this IRA focused field investigation is believed to be the Former Dry Cleaning and Laundry Facility, Building 1100. Two release mechanisms were considered. The first scenario considers operational spills either on the ground surface outside the building or in the building drain system. The other release mechanism considers seepage from the settling tank located to the west of the facility. One or both of these scenarios may have occurred during the operational history of the laundry. Affected media, as determined from prior investigations, are surface water and sediment at the edge of Lake Druid, and groundwater and subsurface soil between the facility and the lake.

Two potential release pathways for contaminant migration were considered:

(1) The transport of the chlorinated solvents by stormwater runoff into the swale and culvert, from which they are directed into the lake.

(2) Seepage of the chlorinated solvents through the soil and into the groundwater, which then migrates into the lake.

Investigations in the IRA focused field investigation were intended to determine the extent of chlorinated solvent contamination in the lake and the degree to which the two potential release pathways contributed to the contamination of Lake Druid.

Potential exposure pathways to the chlorinated solvents exist in the event of dermal contact, ingestion, or inhalation of surface water, sediment, groundwater, and air. Current receptors could include ecological types (biota), recreational users of Lake Druid, and offsite residents living along the lake.

The exposure potential to these contaminated media (based on initial site screening results) are discussed in greater detail in the Area C PRE (Appendix A).

2.0 FIELD PROGRAM

A focused field investigation was initiated at OU 4 to support the project logic diagram implemented in the workplan, refine the site conceptual model, and support the implementation of an IRA. The investigation included (1) defining the extent of contamination in Lake Druid's surface water and sediment, (2) evaluating the source of volatile organics in Lake Druid, (3) delineating the horizontal and vertical extent of VOCs in the groundwater along the lakeshore, (4) collecting physical characteristics of the lake, and (5) supporting a focused IRA to mitigate VOCs in Lake Druid.

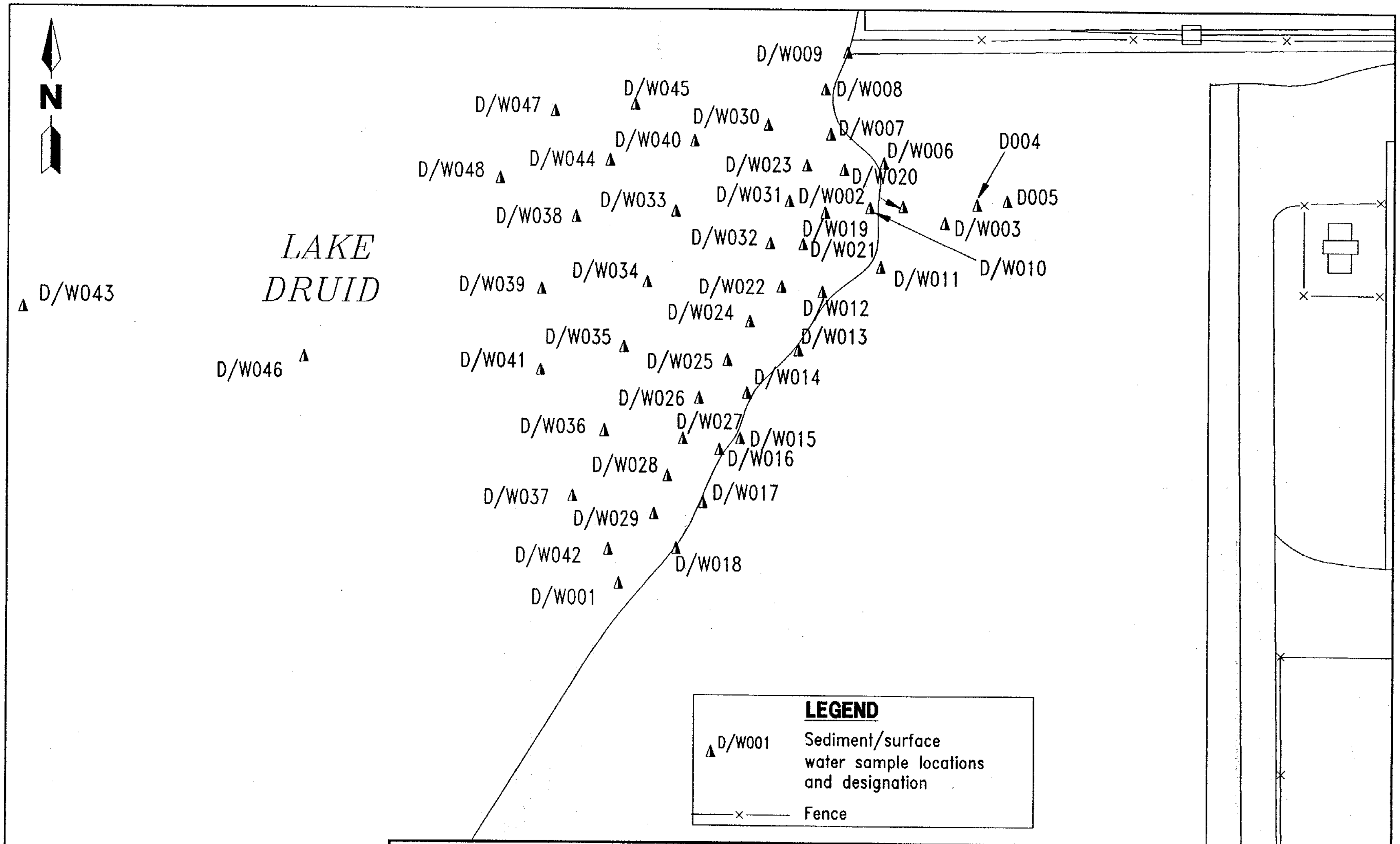
2.1 SURFACE WATER AND SEDIMENT SAMPLING. Samples of sediment and surface water were collected from Lake Druid and the adjoining creek to evaluate the extent of VOC contamination. Fifty-nine surface water samples and 59 sediment samples were collected from Lake Druid at 48 locations from May 2, 1996, through May 23, 1996. Figure 2-1 shows the locations of sediment and surface water samples.

Where physically possible, samples were collected on foot from the shoreline. Locations farther out into the lake were accessed with the use of a johnboat. Surface water samples in shallow water (0 to 1 foot in depth) were collected by directly immersing the sample containers into the surface water. Where the depth of the lake was greater than 1 foot, a second sample was taken directly above the lake bottom. The collection of the sample above the lake bottom was done with the use of a Van Dorn sampler, allowing for the collection of a surface water sample at the desired depth interval.

The Van Dorn sampler is a polyvinyl chloride (PVC) cylinder with rubber stoppers that leave the ends of the sampler open as it is being lowered horizontally. Upon reaching the desired depth, a messenger was sent down a rope to cause the stoppers to close the cylinder and trap the water. The sampler was then retrieved when the water was transferred into the appropriate sample containers, which was after the Van Dorn sampler was hoisted to the surface. At each sampling location, temperature, conductivity, pH, reduction-oxidation potential, and dissolved oxygen readings were collected. The data are included on the surface water and sediment sampling logs in Appendix B. The sample positions were marked with either stakes or anchored buoys, and also recorded with the use of a Global Positioning System (GPS).

Following each surface water sample, a sediment sample was collected at the same location using one of three methods. Locations accessible by foot were sampled with a 2-inch-diameter polyethylene terephthalate sleeved stainless steel sediment corer, which was pushed by hand or driven with a hammer into the sediment. Upon retrieval of the corer, the polyethylene terephthalate sleeve was removed, capped, and labelled in preparation for delivery to the onsite lab for analysis.

Where lake depths were less than 6 feet, a 3-inch-diameter stainless steel sleeved sediment sampler was used. The sampler was attached to stainless steel rods (extensions) and was lowered manually to the lake bottom from the johnboat. A slide-hammer was used to drive the sampler into the sediment, and the sampler was then pulled manually back into the boat. The stainless steel sleeve was removed from the sampler with the sample inside, capped, and labelled in preparation for delivery to the onsite lab.



0 50 100
SCALE: 1 INCH = 100 FEET

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FIGURE 2-1
SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Because of its size, the 3-inch-diameter sampler was unwieldy to use at depths greater than 6 feet. At lake depths greater than 6 feet, a 1.5-inch-diameter polyethylene terephthalate sleeved steel soil sampler was substituted for the 3-inch sampler.

Surface water and sediment samples were analyzed for target VOCs in the onsite laboratory. Five sediment samples and four surface water samples were submitted to the offsite laboratory for confirmatory analysis of Target Compound List (TCL) VOCs. The results of this sampling effort are summarized in Section 4.2 of this report.

2.2 PHYSICAL LAKE CHARACTERISTICS. Lake characteristics including depth, temperature, conductivity, pH, oxidation-reduction potential, and dissolved oxygen content were measured at three locations near the center of the lake at two depth intervals. At each location, a Van Dorn sampler was used to collect the water samples from two depths 3 feet below the lake surface and 3 feet from the lake bottom. Data are presented in Table 2-1.

The depth of the lake at the three locations ranged from 13.0 feet to 14.6 feet. The water in the lake is clear and supports abundant flora and fauna. Aquatic plants and fish were observed by the investigative team. Water temperature averaged 84 degrees Fahrenheit (°F) near the surface and 80 °F near the bottom. The pH of the lake ranged from 7.40 to 7.69 near the surface and from 6.90 to 7.05 near the bottom, indicating that it is essentially neutral. Specific conductance averaged 157 micromhos per centimeter (μmhos/cm) at the surface and 150 μmhos/cm near the bottom, both moderately low values. Oxidation-reduction potential averaged 194.2 millivolts (mVs) at the surface and 198.2 mV near the bottom. Dissolved oxygen ranged from 6.8 to 7.4 milligrams per liter (mg/ℓ) at the surface and from 3.3 to 4.2 mg/ℓ near the bottom.

2.3 DIRECT PUSH TECHNOLOGY FIELD PROGRAM. The stratigraphy and the distribution of VOC contaminants within the surficial aquifer adjacent to Lake Druid were evaluated using direct push technology (DPT) methods, provided by ABB-ES and Fugro Geosciences, Inc. Fugro's DPT rig was equipped with a piezocone to evaluate stratigraphy and a hydro-trap groundwater sampler. This equipment was used to

- gather information regarding subsurface soil characteristics based on piezocone measurements and
- collect groundwater samples at discrete intervals.

Direct push methods were utilized at 17 locations, including four piezocone locations and 13 groundwater sampling locations, as shown on Figure 2-2.

2.3.1 Difficulties Encountered During Direct Push Program The direct push equipment had difficulty penetrating a dense fine-grained sand layer present at depths ranging from 8 to 14 feet bls. Mud rotary drilling was used to install PVC casings through this dense layer. The DPT rods were then advanced through the casing. The procedure for installing the casings is explained later in this chapter.

Table 2-1
Physical Lake Characteristics

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Measurements	Locations					
	1		2		3	
Lake Depth (ft)	13.4		14.6		13	
Sample Depth (ft below water surface)	3	10.4	3	11.6	3	10
Temperature (degrees Fahrenheit [°F])	84	78	84	81	84	81
Specific Conductivity (μmhos/cm)	160	150	160	150	150	150
pH	7.69	6.9	7.4	7.05	7.68	6.92
Oxidation-Reduction Potential (mV)	192.5	200.8	203.8	190.5	186.4	203.2
Dissolved Oxygen content (mg/ℓ)	6.8	3.3	6.8	4.9	7.4	4.2

Notes: ft = feet.
mg/ℓ = milligrams per liter.
mV = millivolts.
μmhos/cm = micromhos per centimeter.

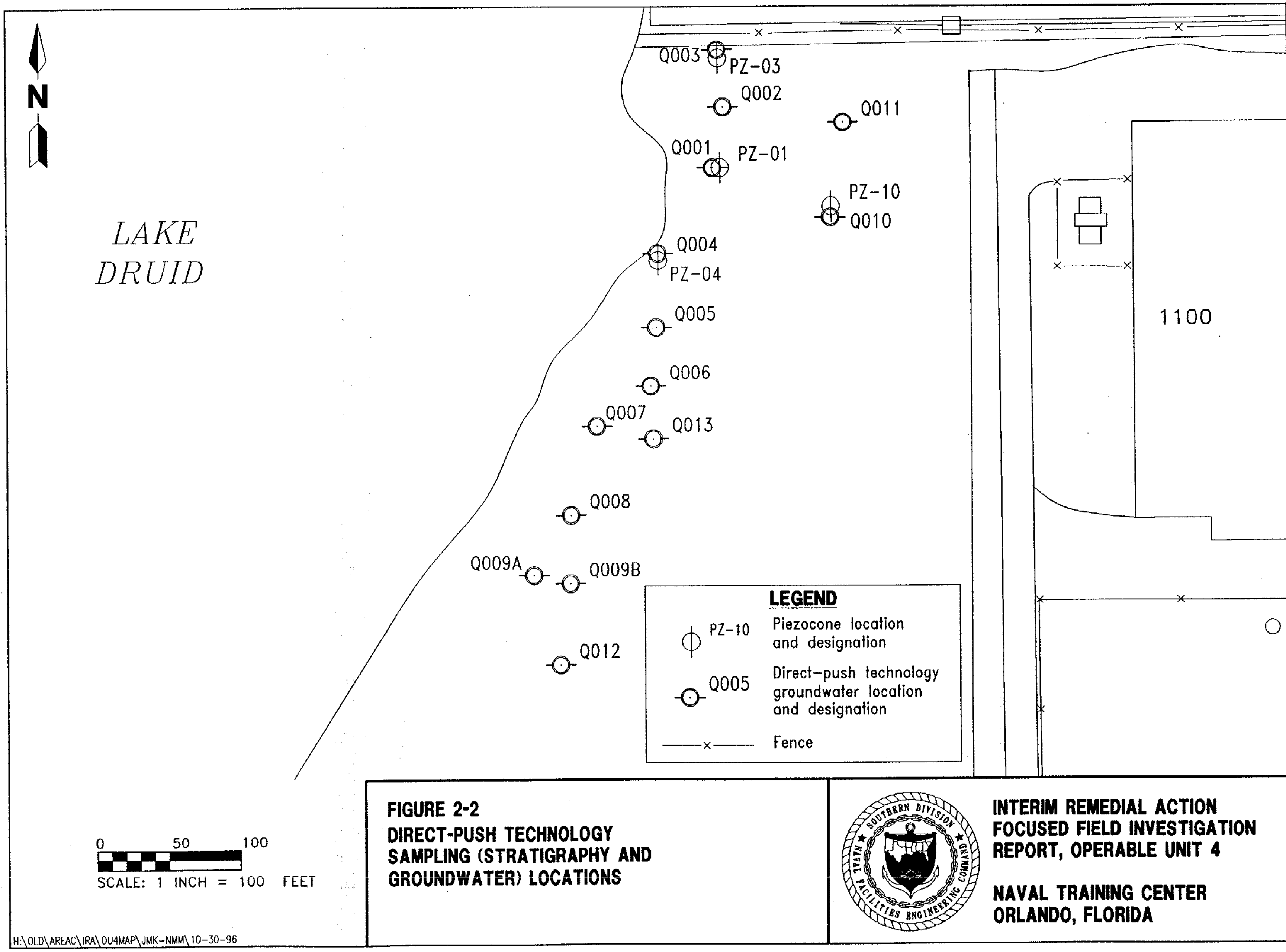

FIGURE 2-2
DIRECT-PUSH TECHNOLOGY SAMPLING (STRATIGRAPHY AND GROUNDWATER) LOCATIONS

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

At DPT locations U4Q006 and U4Q007 (Figure 2-2), the casings were not installed deep enough, causing the DPT rig to reach refusal prior to advancing beneath the hard dense layer. As a consequence, groundwater samples were not collected at these locations below the dense layer. Location U4Q013 was added near these two abandoned locations.

<u>2.3.2 Stratigraphic Investigation</u> Piezocone penetrations are made by hydraulically advancing a series of steel rods into the soil at a constant rate. Resistance to penetration at the cone tip and at the outer surface of the sleeve, located near the cone tip, is recorded. Subsurface pore pressure is monitored with a pressure transducer. These measurements are recorded by the onboard computer. The data are compared to empirically derived measurements or parameters characteristic of different soil types. The piezocone is able to provide information regarding soil classifications consistent with the Unified Soil Classification System, relative soil density (split-spoon blow counts), water levels, and effective thickness of confining units, if any.

Piezocone penetrations were attempted at five locations in conjunction with groundwater sampling. Stratigraphic information was obtained from four locations at OU 4 (U4Q001, U4Q003, U4Q004, and U4Q010). Location U4Q007, also referred to as location P2-07, was attempted, but the piezocone could not be advanced past the dense layer. Piezocone results are summarized in Appendix C.

<u>2.3.3 Groundwater Sampling with DPT and TerraProbe℠ Rigs</u> To speed up the sampling process, ABB-ES's TerraProbe℠ was utilized to collect all the groundwater samples from above the dense layer. The DPT rig with the hydro-trap groundwater sampler was better suited to collect the deeper samples, and was used to collect all groundwater samples from beneath the dense layer.

The TerraProbe℠ system utilized a 2-foot retractable screen for groundwater sample collection. The sampler consisted of a telescoping assembly containing a 2-foot length of stainless steel well screen fitted with an expendable tip. This assembly was hydraulically advanced with a series of rods. The screen was exposed in the subsurface by retracting the outer casing of the sample device, allowing natural hydrostatic pressure to force groundwater into the sampler. Teflon™ tubing was then lowered down to the screened interval, and an appropriate amount of groundwater was purged out using a peristaltic pump. After a connection with the surrounding formation was established and the groundwater cleared, the Teflon™ tubing was crimped and pulled to the surface. Groundwater was allowed to flow by gravity out of the tubing and into the sample containers. Samples were collected for analysis at both onsite and offsite laboratories.

The DPT rig utilized the hydro-trap groundwater sampler for collecting groundwater samples at discrete intervals. The hydro-trap groundwater sampler consisted of a telescoping assembly containing a 1-foot length of stainless steel well screen fitted with a cone tip. This assembly was hydraulically advanced with a series of rods in the same manner as the piezocone penetrations. The screen was exposed in the subsurface by retracting the outer casing of the sample device, allowing natural hydrostatic pressure to force groundwater into the sample collection chamber. The sample was held in the chamber for retrieval by using nitrogen gas back-pressure to close a small ball check-valve at the bottom of the sample collection chamber. The sample collection chamber and screen assembly was lifted to the surface to recover the sample. To collect groundwater from multiple discrete intervals, the hole was reentered with a decontaminated sample collection chamber and screen assembly and the hydro-trap was advanced to the next desired depth. Cross-contamination was prevented by using O-rings to form watertight seals above and below the sample chamber.

From May 11, 1996, to June 5, 1996, groundwater samples were collected from 13 locations (U4Q001 to U4Q013) at OU 4, adjacent to Lake Druid, shown on Figure 2-2. One hundred sixty-eight groundwater samples were collected from depths ranging from 2 to 67 feet bls.

Sampling objectives included evaluating the horizontal and vertical extent of VOC contamination and characterizing concentrations of the VOCs in the plume. At each location, groundwater samples were collected at frequent intervals to provide detailed vertical delineation. In general, water samples were collected every 2 feet down to a depth of approximately 40 feet bls. Samples were then collected at 4-foot intervals until the Hawthorn Formation was approached, at which point frequency was increased back to every 2 feet. Actual sampling depths may have varied based on field GC results for preceding samples or the adjacent sample location. Table 2-2 summarizes all sample depth intervals. Because neither the TerraProbe℠ nor the Fugro rig could penetrate the hard layer, no groundwater samples were collected from this zone via direct push.

All groundwater samples collected with the DPT and TerraProbe℠ were analyzed for target VOCs in the onsite laboratory. Ten percent of the samples were submitted to an offsite laboratory for confirmatory analysis. Offsite samples were analyzed for VOCs using the Contract Laboratory program (CLP)/TCL for volatile organics. Chapter 3.0 provides more detailed information about the analytical program for this investigation. The results of this sampling effort are discussed in Chapter 4.0 of this report.

<u>2.4 DRIVE POINT WELL INSTALLATION</u>. Drive point wells were installed during the focused field activities to (1) assess vertical hydraulic potential between the groundwater and the lake, (2) sample groundwater in the sediment just below the lake bottom, and (3) assist in assessing groundwater flow direction across OU 4. Six drive point wells were installed in the surface waters, one out in Lake Druid (approximately 100 feet off shore), one in the creek, and four along the shoreline. Four drive point wells were installed in the wooded area between the laundry and the lake. Drive point well locations are shown on Figure 2-3.

The drive point wells were constructed from 1.25-inch-diameter stainless steel casing and screen. The casings were all 5-foot sections while the screens were 1 foot in length with 0.010-inch (10-slot) openings and a stainless steel cast point tip (Figures 2-4 and 2-5). They were installed with the use of a slide hammer, driven point down to below the top of the lake bottom or to below the top of the water table, depending on location.

To ensure connection to the surrounding formation, each drive point well was developed upon installation. The wells were developed with an ISCO peristaltic pump by lowering Teflon™ tubing into the drive point well and pumping at a constant rate into a 5-gallon bucket. The tubing was used to surge the wells while pumping. Each well was purged a minimum of 5 gallons until each pumped clear.

Table 2-2
DPT Location Sample Intervals

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	Depth (ft)	Sample ID	Depth (ft)	Sample ID	Depth (ft)
U4Q00101F	2-4	U4Q00207F	32-34	U4Q00411F	27-29
U4Q00102F	4-6	U4Q00208F	40-42	U4Q00412F	29-31
U4Q00103F	6-8	U4Q00209F	48-50	U4Q00413F	31-33
U4Q00104F	8-10	U4Q00210F	56-58	U4Q00414F	33-35
U4Q00105F	10-12	U4Q00211F	60-62	U4Q00415F	35-37
U4Q00106F	24-26	U4Q00301F	4-6	U4Q00416F	37-39
U4Q00107F	26-28	U4Q00302F	6-8	U4Q00417F	39-41
U4Q00108F	28-30	U4Q00303F	8-10	U4Q00418F	41-43
U4Q00109F	30-32	U4Q00304F	10-12	U4Q00419F	43-45
U4Q00110F	32-34	U4Q00305F	12-14	U4Q00420F	45-47
U4Q00111F	34-36	U4Q00305FD	12-14	U4Q00421F	47-49
U4Q00112F	36-38	U4Q00306F	16-18	U4Q00422F	49-51
U4Q00113F	38-40	U4Q00307F	22-24	U4Q00423F	51-53
U4Q00113FD	38-40	U4Q00308F	34-36	U4Q00424F	53-55
U4Q00114F	40-42	U4Q00309F	42-44	U4Q00425F	55-57
U4Q00115F	42-44	U4Q00309FD	42-44	U4Q00426F	57-59
U4Q00116F	44-46	U4Q00310F	52-54	U4Q00501F	4-6
U4Q00117F	46-48	U4Q00311F	60-62	U4Q00502F	6-8
U4Q00118F	48-50	U4Q00401F	2-4	U4Q00503F	20-22
U4Q00119F	50-52	U4Q00402F	4-6	U4Q00504F	24-26
U4Q00120F	52-54	U4Q00403F	6-8	U4Q00505F	28-30
U4Q00121F	59-61	U4Q00404F	8.5-10.5	U4Q00506F	32-34
U4Q00122F	65-67	U4Q00405F	15-17	U4Q00506FD	32-34
U4Q00201F	3-5	U4Q00406F	17-19	U4Q00507F	36-38
U4Q00202F	6-8	U4Q00407F	19-21	U4Q00508F	42-44
U4Q00203F	9-11	U4Q00407FD	19-21	U4Q00509F	48-50
U4Q00204F	22-24	U4Q00408F	21-23	U4Q00510F	58-60
U4Q00205F	24-26	U4Q00409F	23-25	U4Q00601F	4-6
U4Q00206F	28-30	U4Q00410F	25-27	U4Q00602F	6-8
				U4Q00603F	9-11

See notes at end of table.

Table 2-2 (Continued)
DPT Location Sample Intervals

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	Depth (ft)	Sample ID	Depth (ft)	Sample ID	Depth (ft)
U4Q00604F	11-13	U4Q01003F	8-10	U4Q01111F	38-40
U4Q00605F	22-24	U4Q01004F	10-12	U4Q01112F	44-46
U4Q00606F	26-28	U4Q01005F	12-14	U4Q01113F	50-52
U4Q00607F	30-32	U4Q01006F	14-16	U4Q01114F	54-56
U4Q00701F	4-6	U4Q01007F	22-24	U4Q01115F	58-60
U4Q00702F	6-8	U4Q01008F	24-26	U4Q01115FD	58-60
U4Q00703F	18-20	U4Q01009F	26-28	U4Q01116F	62-64
U4Q00801F	4-6	U4Q01010F	28-30	U4Q01201F	4-6
U4Q00802F	6-8	U4Q01011F	30-32	U4Q01201FD	4-6
U4Q00803F	18-20	U4Q01012F	32-34	U4Q01202F	6-8
U4Q00804F	24-26	U4Q01013F	34-36	U4Q01202FD	6-8
U4Q00805F	30-32	U4Q01014F	38-40	U4Q01203F	8-10
U4Q00806F	38-40	U4Q01015F	42-44	U4Q01204F	18-20
U4Q00807F	46-48	U4Q01016F	46-48	U4Q01205F	22-24
U4Q00808F	50-52	U4Q01017F	48-50	U4Q01205FD	22-24
U4Q00809F	54-56	U4Q01018F	50-52	U4Q01206F	26-28
U4Q00901F	4-6	U4Q01019F	52-54	U4Q01206FD	26-28
U4Q00902F	7-9	U4Q01020F	54-56	U4Q01207F	32-34
U4Q00903F	16-18	U4Q01021F	56-58	U4Q01207FD	32-34
U4Q00903FD	16-18	U4Q01022F	58-60	U4Q01208F	38-40
U4Q00904F	20-22	U4Q01023F	60-62	U4Q01209F	46-48
U4Q00904FD	20-22	U4Q01024F	64-66	U4Q01210F	50-52
U4Q00905F	24-26	U4Q01101F	4-6	U4Q01211F	54-56
U4Q00905FD	24-26	U4Q01102F	6-8	U4Q01212F	58-60
U4Q00906F	28-30	U4Q01103F	8-10	U4Q01301F	24-26
U4Q00906FD	28-30	U4Q01104F	10-12	U4Q01302F	30-32
U4Q00907F	34-36	U4Q01105F	12-14	U4Q01303F	36-38
U4Q00908F	42-44	U4Q01106F	14-16	U4Q01304F	42-44
U4Q00909F	48-50	U4Q01107F	22-24	U4Q01305F	48-50
U4Q00910F	52-54	U4Q01108F	26-28	U4Q01306F	54-56
U4Q01001F	4-	U4Q01109F	30-32	U4Q01307F	58-60
U4Q01002F	6-8	U4Q01110F	34-36		

Notes: DPT = direct push technology.
ID = identification.
ft = feet.

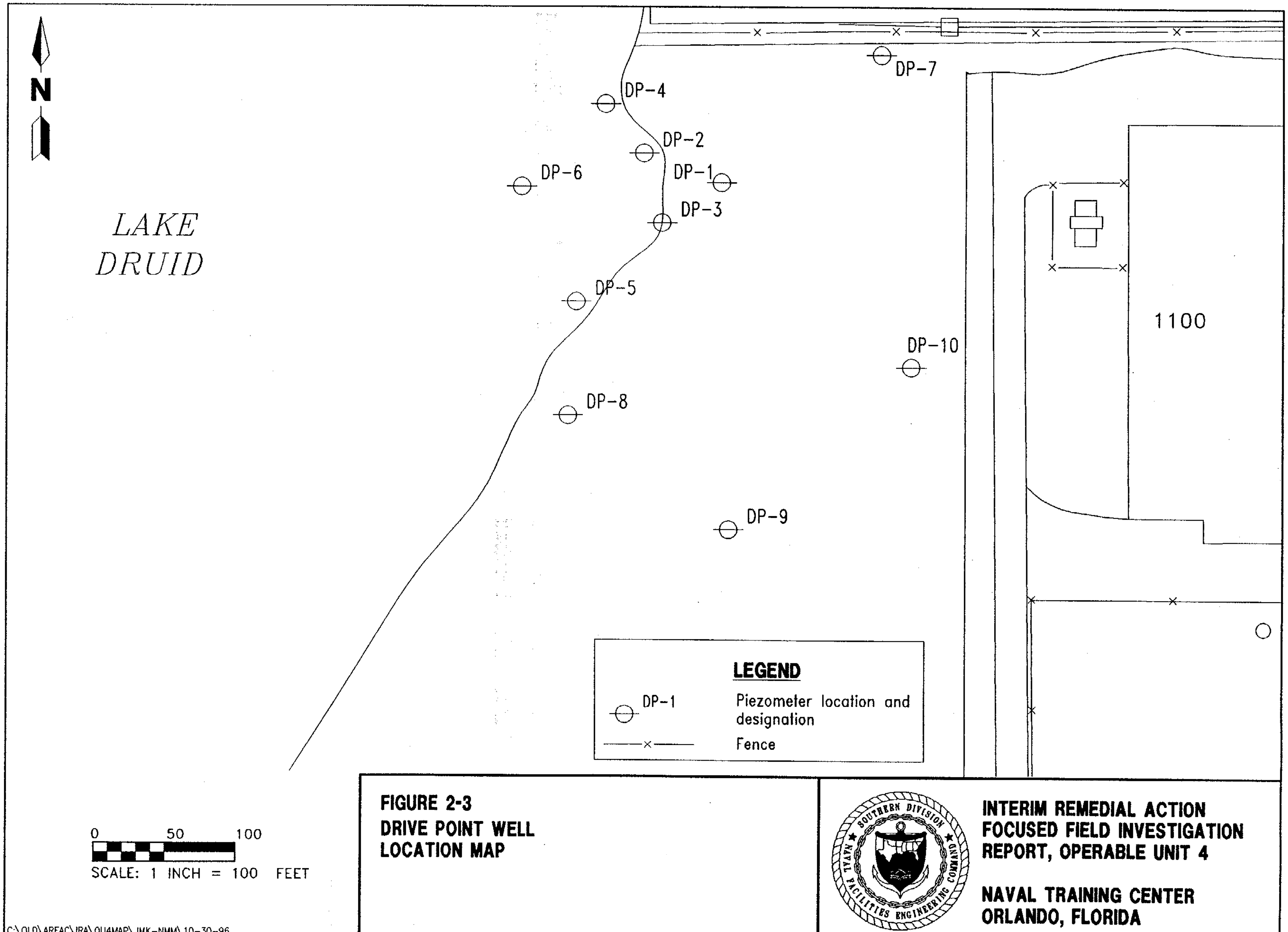

FIGURE 2-3
DRIVE POINT WELL LOCATION MAP

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

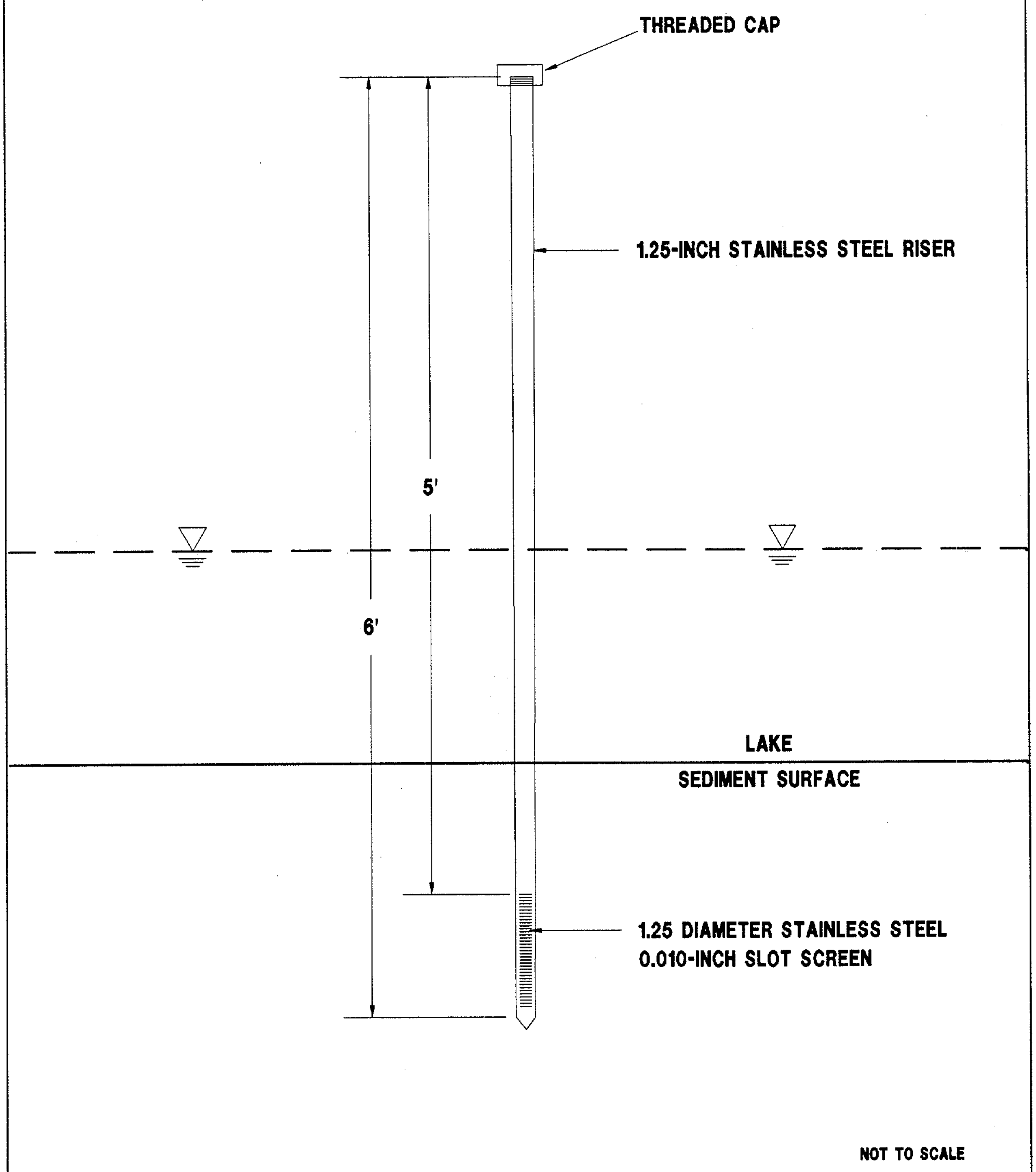

FIGURE 2-4
TYPICAL DRIVE POINT
WELL CONSTRUCTION DETAIL (IN LAKE)

INTERIM REMEDIAL ACTION
FOCUSED FIELD INVESTIGATION
REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER
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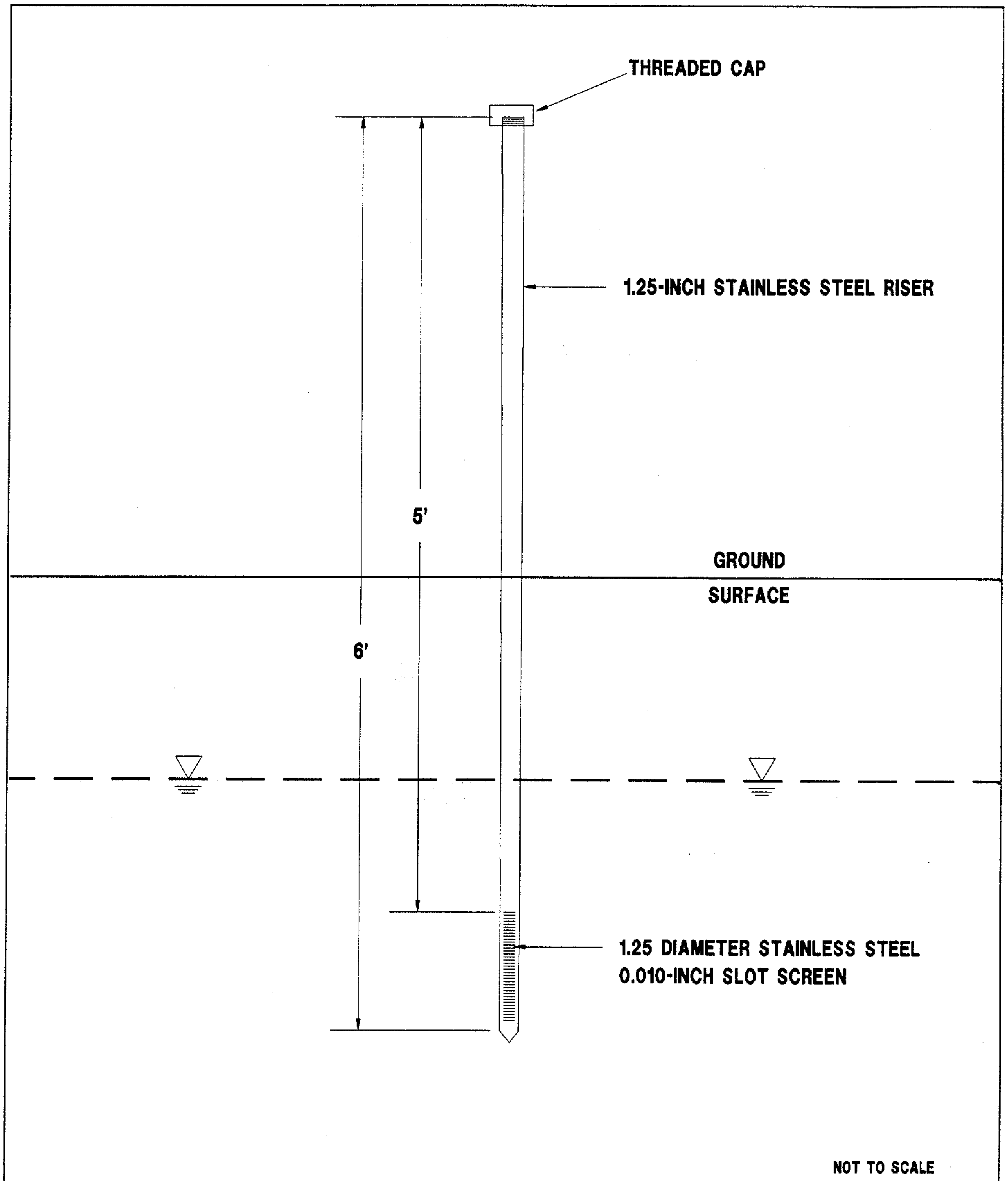

FIGURE 2-5
TYPICAL DRIVE POINT
WELL CONSTRUCTION DETAIL (INLAND)

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INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

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Five drive point wells were installed in Lake Druid to analyze the head potential between the surface water and the groundwater. As shown on Figure 2-3, four wells were located along the shoreline and one well out into the lake. To assist in the analysis of the vertical head potential, a sixth drive point well was installed in the creek approximately 40 feet east of the main body of the lake. Vertical head potential was analyzed by measuring the water level both inside and outside the drive point well. A higher water level within the drive point well indicated an upward vertical potential, while a lower level in the well indicated a downward potential.

Following purging, a groundwater sample was collected from each of the six drive point wells within the lake and the creek to characterize groundwater contamination just below the lake bottom. The wells were sampled using 3/4-inch interior diameter (ID) Teflon™ bailers and analyzed in the onsite laboratory for the target VOCs. The sampling results are reported in Chapter 4.0, Section 4.3

Four drive point wells were also installed east of the lake in the wooded area to assist in assessing groundwater flow across the study area. The elevation of groundwater was determined by subtracting the depth of water below top of casing (BTOC) from the elevation at the top of casing (TOC) at the four drive point well locations inland. The data were used along with elevation data from the monitoring wells to create a potentiometric surface map reported in Subsection 2.7.1. TOC elevations were all surveyed relative to mean sea level.

__2.5 DRILLING FIELD PROGRAM__. Drilling services were provided under subcontract by Alliance Environmental, Inc. Alliance was tasked to install surface casings, collect subsurface soil samples, and install monitoring wells.

__2.5.1 Surface Casing Installation__ Alliance used mud rotary drilling methods to construct the boreholes for surface casing installation. The casings were installed for two reasons:

(1) to seal off the upper portion of the surficial aquifer from potentially contaminating the lower portion beneath the dense layer, while penetrating through the dense layer with telescope casing for access with DPT to take groundwater samples; and

(2) to seal off the upper portion of the surficial aquifer while installing intermediate and deep monitoring wells.

The casings installed to enable the DPT rig to sample beneath the dense layer consisted of a 6-inch PVC section set just into the dense layer and a 2-inch PVC section telescoping through the dense layer. The borehole for the 6-inch PVC section was created using mud rotary drilling methods with a 10.25-inch roller-cone bit. The advancement of the 2-inch section was completed using a 4.25-inch roller-cone bit. Each section of the telescoping casing was secured and sealed with a cement-bentonite grout mix that was tremied from the bottom of the casing to the ground surface. Four locations (U4Q001, U4Q004, U4Q007, and U4Q010) required two casings, one for the piezocone penetration and one for groundwater sampling. Table 2-3 summarizes the construction details for each casing.

Table 2-3
DPT Casing Construction Details

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Boring ID	Date Installed (6-inch)	Date Installed (2-inch)	6-Inch Casing Depth (feet bls)	2-Inch Casing Depth (feet bls)
U4Q001(1)	5/17/96	5/19/96	17	23
U4Q001(2)	5/18/96	5/19/96	17	23
U4Q002	5/18/96	5/19/96	16	22.5
U4Q004(1)	5/20/96	5/21/96	11.5	16
U4Q004(2)	5/20/96	5/21/96	11	16
U4Q005	5/20/96	5/21/96	11	18
U4Q006	5/20/96	5/21/96	16	20
U4Q007(1)	5/22/96	5/23/96	10	18
U4Q007(2)	5/22/96	5/23/96	10	18
U4Q008	5/22/96	5/23/96	12	18
U4Q009	5/22/96	5/23/96	13	15.5
U4Q010(1)	5/29/96	5/30/96	17	22
U4Q010(2)	5/29/96	5/30/96	17	22
U4Q011	5/29/96	5/30/96	17	22
U4Q012	5/29/96	5/30/96	12	18
U4Q013	6/03/96	6/04/96	14	24.5

Notes: All casing materials are made of polyvinyl chloride.

DPT = direct push technology.
ID = identification.
bls = below land surface.

Upon completion of piezocone advancement and groundwater sample collection, the casings and associated holes were abandoned using a cement-bentonite mix that was tremied from the bottom of the associated hole and casing to the ground surface.

Casings were also installed during monitoring well installation. Eight-inch steel casings were installed to seal off contamination in the upper zones of the surficial aquifer from the deeper zones. Such casings were used in the construction of two intermediate and two deep wells. The boreholes for the four casings were created by a 10.25-inch roller-cone bit. Once installed, the casings were grouted in place by tremieing a cement-bentonite grout mix from the bottom of the casing to the surface. Details of the construction for monitoring well casings are included in Table 2-4.

2.5.2 Subsurface Soil Lithologic Sampling Lithologic samples were collected at two deep monitoring well locations. Samples from the surface to the dense layer were collected during the installation of the PVC casings used for the DPT work. The remainder of the lithologic samples were collected during the installation of the steel casings and the monitoring wells. Boring logs are included in Appendix D. Four samples from four different zones were sent offsite for grain-size analysis, to assist in the design of future monitoring and/or groundwater extraction wells installed at the site. Sample U4SGS01 was a composite of soil taken above the dense layer. U4SGS02 was a representative sample of the dense layer. U4SGS03 was a composite of samples from below the dense layer. U4SGS04 was a representative sample from just above the Hawthorn Group. The results are presented in Appendix E.

2.5.3 Monitoring Well Installation Six monitoring wells were installed at OU 4 to provide long-term monitoring capability and characterize the hydraulic characteristics of the surficial aquifer at different depths, including the dense layer that could not be sampled using DPT techniques (Figure 2-6). The six monitoring wells were installed at two locations as clusters of three. Each cluster contains a shallow, water table well completed above the dense layer; an intermediate well, cased to the upper portion of the dense layer and intended to screen the interval containing the very dense and in some cases cemented sand; and a deep well, cased down to approximately 40 feet and screened above the uppermost clay layer within the Hawthorn Group. Cluster locations were selected after review of the DPT results and discussions with the OPT.

The shallow monitoring wells were installed using an 8-inch outside diameter (OD), hollow stem auger. The intermediate and the deep monitoring wells were advanced through 8-inch-diameter casing with the 4.25-inch roller-cone bit. All monitoring wells were constructed of 2-inch ID, Schedule 10S Type 304, flush-jointed, threaded, stainless steel screen and riser. The shallow wells were constructed with 10 feet of 0.010-inch wire wrapped screens. The intermediate and deep wells were constructed with 5 feet of 0.010-inch wire wrapped screen. The annular space around the well screens was backfilled with a clean silica sand (20/30), compatible with the screen slot size, extending from the bottom of the well screen to 2 feet above the top of the screen. A minimum 0.5-foot-thick bentonite pellet seal was installed above the sand pack. A cement-bentonite grout was tremied from the top of the bentonite seal to the ground surface. Each well was completed with an aboveground protective cover with locking cap for security, surrounded by a 3-foot by 4-foot by 6-inch concrete pad. Protective posts were placed around both clusters of wells. Table 2-4 summarizes the construction details for each well. Monitoring well construction diagrams are provided in Appendix F.

Table 2-4
Monitoring Well Construction Details

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Well ID[1]	Date Installed	Borehole Depth (feet bls)	Well Depth (feet bls)	Screen Interval	Filter Pack Interval	Seal Interval	Grout Interval	Casing Depth (feet bls)
OLD-13-09A	5/31/96	12	11	1-11	0.5-12	0-0.5	0	N/A
OLD-13-10B	6/02/96	21	21	16-21	15-21	12-15	0-12	15
OLD-13-11C	6/02/96	62	62	57-62	55-62	52-55	0-52	35.5
OLD-13-12A	6/04/96	11.5	11.5	1.5-11.5	1-11.5	0-1	0	N/A
OLD-13-13B	6/04/96	21	21	16-21	14-21	10-14	0-10	15.5
OLD-13-14C	6/04/96	62	62	57-62	55-62	53-55	0-53	45

[1] A,B,and C Suffixes denote shallow, intermediate, and deep wells, respectively.

Notes: All wells constructed with 2-inch stainless steel riser and screen. All wells are equipped with 0.01-inch wire wrapped screen.

ID = identification.
bls = below land surface.
N/A = No casing was installed.

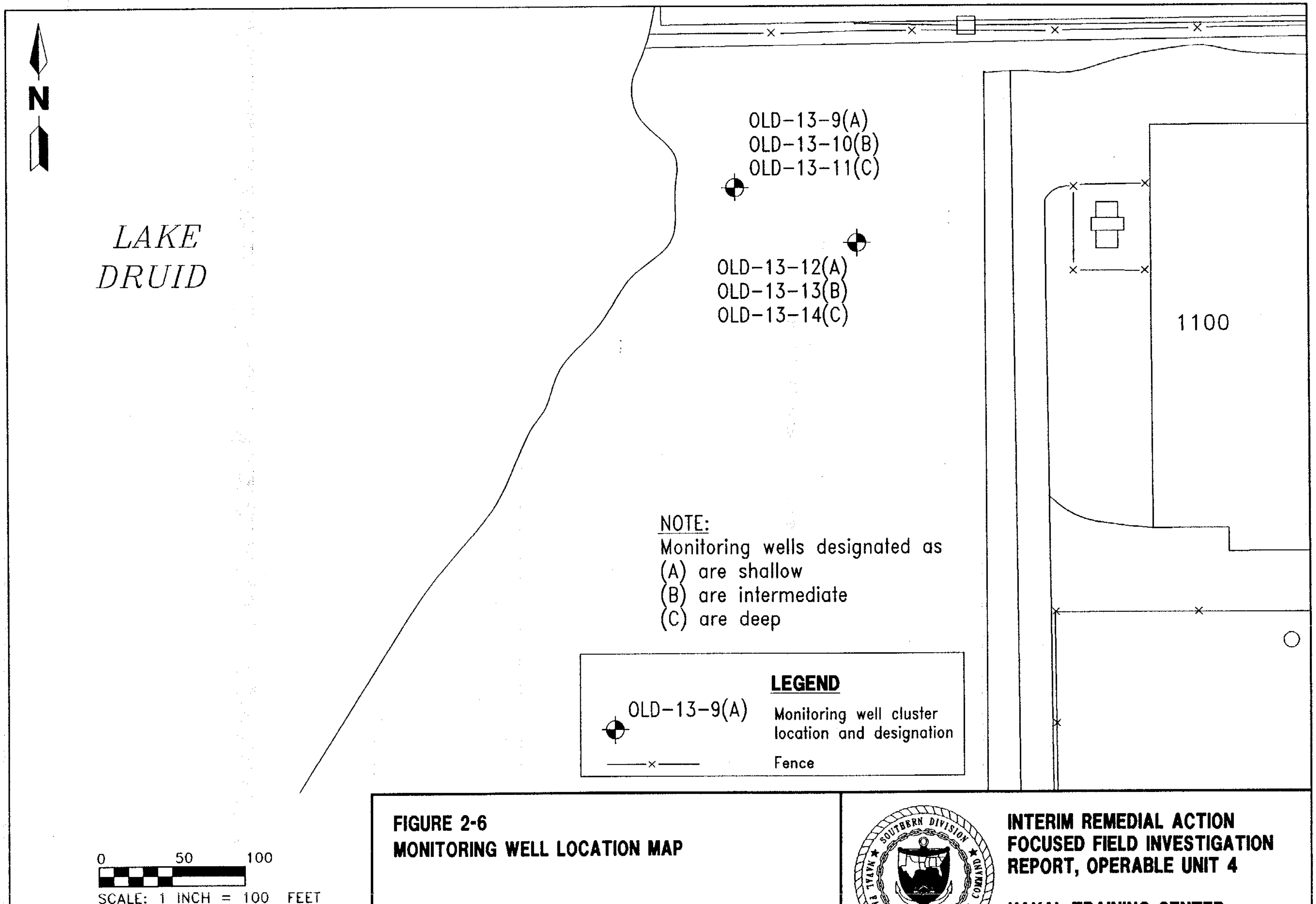

FIGURE 2-6
MONITORING WELL LOCATION MAP

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

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2.5.4 Monitoring Well Development Each monitoring well was developed by ABB-ES personnel following a minimum of 24 hours of grout set time. The wells were developed to remove fine soil particles, improve hydraulic connection with the natural formation, and obtain representative groundwater samples during the groundwater sampling phase. All monitoring wells were developed using submersible pumps. Development of the deep wells was initiated with an inertial pump and completed with a submersible pump. Wells were purged a minimum of three well volumes, until the water was clear and free of turbidity, and/or until field measurements of pH, temperature, and conductivity stabilized. All of the parameters were measured regularly during the development process and logged into the field logbook. All foreign water introduced during well installation was also developed out of the formation. The monitoring well development logs are provided in Appendix G.

Development data indicated that OLD-13-11C and OLD-13-13B may have suffered some form of grout intrusion. Evidence of this can be seen by the relatively high pH readings.

2.6 GROUNDWATER SAMPLING. The first groundwater sampling event was conducted approximately 2 weeks following the monitoring well installation. Prior to purging, the breathing zone and the mouth of each well were monitored for VOCs with a flame ionization detector (FID). No readings were detected in the breathing zone, but were detected in the well mouths at every location. OLD-13-10B had the highest reading at 400 parts per million (ppm). A methane filter was used; however, by the time it was employed, most of the VOCs had probably escaped the well mouth. Steady readings could not be sustained long enough to compare the filter and nonfilter readings accurately.

Each well was purged prior to sampling to clear the well of stagnant water that was not representative of aquifer conditions. Low-flow sampling was the method utilized to purge and sample each monitoring well installed at OU 4. The purpose of using low-flow purging was to ensure that the sample taken was from the targeted aquifer zone. New 1/4-inch OD Teflon™ tubing was lowered into each well and connected to an ISCO peristaltic pump for purging. All investigation-derived waste (IDW) generated from well purging was placed in labeled drums at a staging area north of Building 1100.

Each well was purged a minimum of three well volumes. During purging, temperature, pH, conductivity, and dissolved oxygen (O_2) were measured regularly with an Orion Model 250A (pH), YSI Model 33 conductivity/temperature, and a YSI Model 51B dissolved O_2 meter, respectively. When the parameters, along with turbidity, had stabilized, a sample was taken. OLD-13-11C and OLD-13-13B had elevated pH readings, although they were thoroughly developed and purged. It was believed that grout and/or mud from the drilling process collected down near the screen and could not be flushed out. Refer to the Field Data Record forms in Appendix H for more specific details of each purge and sample taken.

A new 2.5-liter amber bottle was used to collect the groundwater sample from each well. A rubber stopper, #5 size, was wrapped in a Teflon™ swatch. It was placed in the bottle mouth with two 1/4-inch OD Teflon™ tubing sections inserted through two holes in the stopper. One piece of tubing ran up from the well and the other ran to the peristaltic pump as shown on Figure 2-7. A vacuum was created in the bottle, and the groundwater sample was slowly drawn in. The 2.5-liter amber

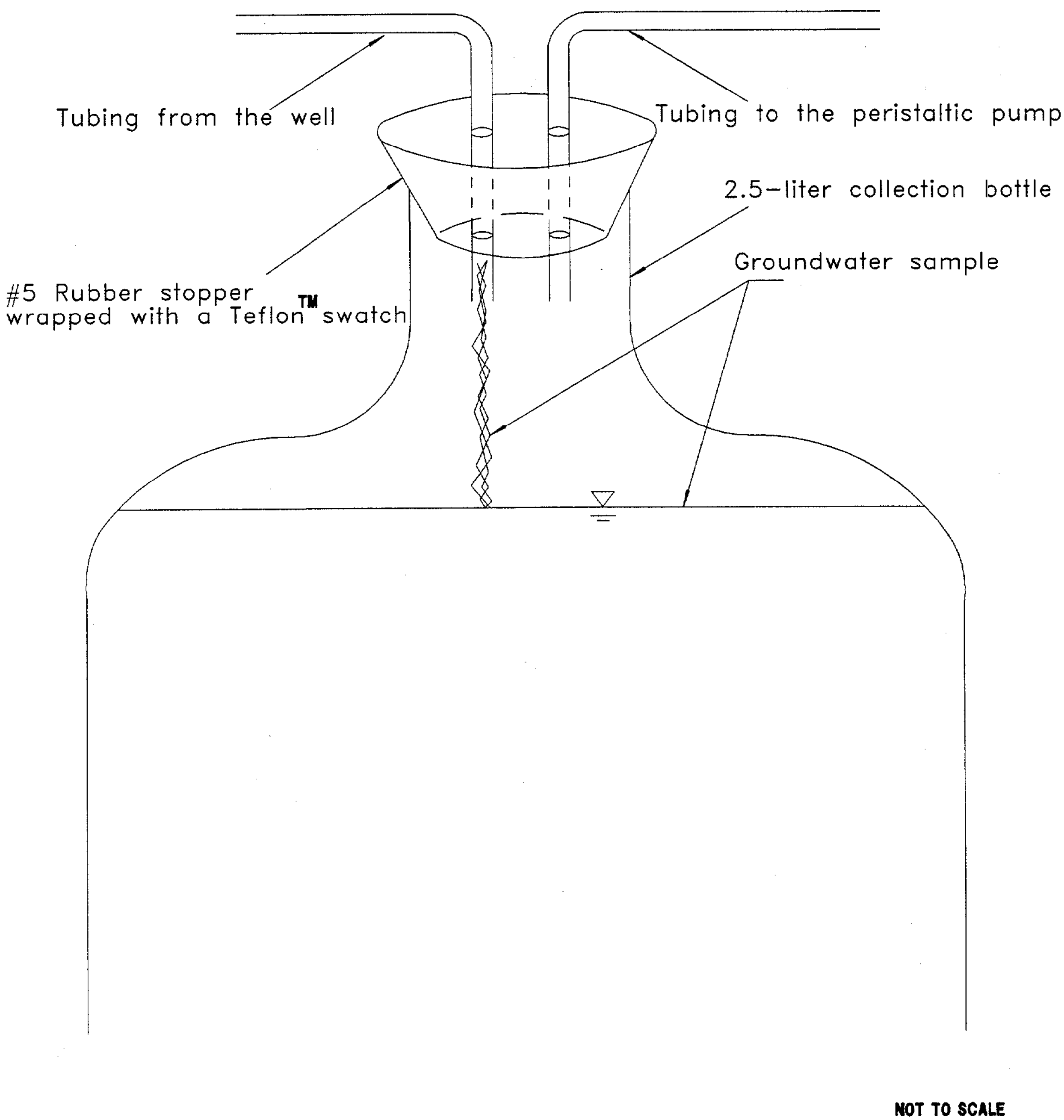

FIGURE 2-7
LOW FLOW GROUNDWATER SAMPLING DETAIL

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bottle was filled, and the contents were poured into the containers appropriate for each parameter sent to the laboratory for analysis. The inlet of the tubing was normally set at the midpoint of the screened interval in each monitoring well.

Parameters collected for laboratory analysis are summarized in Table 2-5. A .45 micron filter was connected in line between the well and the 2.5-liter bottle, to collect the filtered inorganic samples. Groundwater for VOC analysis was collected last in three 40-milliliter (mℓ) glass vials. They were collected as a grab sample by removing the 2.5-liter amber bottle and slowly purging a sample through the Teflon™ tubing. The tubing was removed from the well, and the groundwater sample was drained by gravity out of the Teflon™ tubing that had been in the well and into the 40-mℓ vials.

Proper quality assurance and quality control (QA/QC) was maintained during groundwater sampling as outlined in the NTC, Orlando Project Operations Plan (ABB-ES, 1994a). A rinsate was taken from the Teflon™ tubing used to sample the wells. At location OLD-13-09A, a duplicate was completed for all parameters sent to the laboratory. A matrix spike and matrix spike duplicate (MS/MSD) was taken at location OLD-13-10B. All samples were kept on ice in the field with a trip blank. Samples were packed and then shipped to the laboratory at the end of each day by Federal Express priority overnight. Quality Analytical Laboratories in Montgomery, Alabama, received all shipments, and Appendix I contains copies of the chain-of-custody forms.

<u>2.7 HYDROGEOLOGIC CHARACTERIZATION SURVEY</u>. A hydrogeologic characterization survey was conducted, including a groundwater elevation survey, a vertical potential survey, collection of aquifer characteristics through slug tests, and analysis of aquifer seepage into the lake to support the SCM.

<u>2.7.1 Groundwater Elevation Survey</u> In order to assess groundwater flow across the site, groundwater elevations in each of the monitoring wells and inland drive point wells were measured. The horizontal and vertical coordinates of the monitoring wells and drive point wells were surveyed by a Florida licensed surveyor and are presented in Table 2-6. The elevation of groundwater is determined by subtracting the depth of water BTOC from the elevation at the TOC. One round of water level measurements was taken using a water level indicator and is reported in Table 2-7. The water level data for the shallow wells represents the potentiometric surface shown as Figure 2-8. These data indicate groundwater flow is toward the west. A plot of groundwater elevations from the deep wells would show the same general trend.

<u>2.7.2 Slug Testing</u> *In situ* hydraulic conductivity tests were performed on four of the monitoring wells installed during this investigation. Rising head slug tests were run for all the wells; falling head tests were performed only on wells where the water table was above the screened interval of the monitoring well. The shallow monitoring wells (OLD-13-09A and OLD-13-12A) had three rising head slug tests run on each. The intermediate and deep wells (OLD-13-10B and OLD-13-14C, respectively) had two rising head and two falling head slug tests run on each.

Before each test, the monitoring wells were opened and allowed to equilibrate with ambient air conditions. A static water level measurement was recorded after the well had equilibrated. A 10-pounds per square inch (lb/in^2) transducer was

Table 2-5
Offsite Laboratory Analytical Parameters
IRA Groundwater Monitoring Wells

Interim Remedial Action
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Laboratory Analysis Collected	Amount	Preservative
Total Suspended Solids, Total Dissolved Solids, Total Solids, Total Chlorides, Alkalinity, Sulfate	1 liter	none
Total Organic Carbon	100 mℓ	H_2SO_4
Total Sulfides	250 mℓ	ZnAc/NaOH
Inorganics	1 liter	HNO_3
Inorganics, .45 micron filter	1 liter	HNO_3
Volatile Organic Compounds	3 - 40 mℓ	HCl

Notes: IRA = Interim Remedial Action.
mℓ = milliliter.
H_2SO_4 = sulfuric acid.
ZnAc/NaOH = zinc acetate/sodium hydroxide.
HNO_3 = nitric acid.
HCl = hydrochloric acid.

Table 2-6
Well Point and Monitoring Well Location and Elevation Survey

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Well Number	Horizontal Coordinates [1]		TOC Elevation (msl)
	Northing	Easting	
DP-1	1,536,833.15	544,607.72	104.01
DP-2	1,536,846.70	544,552.55	104.78
DP-3	1,536,800.29	544,560.09	105.15
DP-4	1,536,885.31	544,531.80	104.16
DP-5	1,536,747.31	544,507.63	104.68
DP-7	1,536,909.84	544,743.95	113.43
DP-8	1,536,678.01	544,500.81	105.93
DP-9	1,536,592.12	544,592.35	107.90
DP-10	1,536,695.32	544,743.57	110.92
OLD-13-09A	1,536,845.69	544,605.89	105.99
OLD-13-10B	1,536,857.37	544,607.95	105.87
OLD-13-11C	1,536,850.67	544,600.52	105.98
OLD-13-12A	1,536,803.34	544,687.41	107.17
OLD-13-13B	1,536,799.83	544,693.11	107.69
OLD-13-14C	1,536,807.66	544,695.82	107.93

[1] U.S. Geological Survey, North American Datum, 1927.

Notes: No survey data collected for well number DP-6.

TOC = top of casing.
msl = mean sea level.

Table 2-7
Water Level Elevation Survey

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Well Number	Date	Depth to Water (feet BTOC)	Well Top Elevation (feet)	Water-Level Elevation (feet)
OLD-13-9A	7/23/96	4.07	105.99	101.92
OLD-13-10B	7/23/96	3.78	105.87	102.09
OLD-13-11C	7/23/96	3.61	105.98	102.37
OLD-13-12A	7/23/96	4.24	107.17	102.93
OLD-13-13B	7/23/96	4.60	107.69	103.09
OLD-13-14C	7/23/96	4.82	107.93	103.11
DP-7	7/23/96	9.09	113.43	104.34
DP-8	7/23/96	4.34	105.93	101.59
DP-9	7/23/96	5.37	107.90	102.53
DP-10	7/23/96	7.41	110.92	103.51

Notes: No survey data collected for DP-6.

BTOC = below top of casing.
msl = mean sea level.

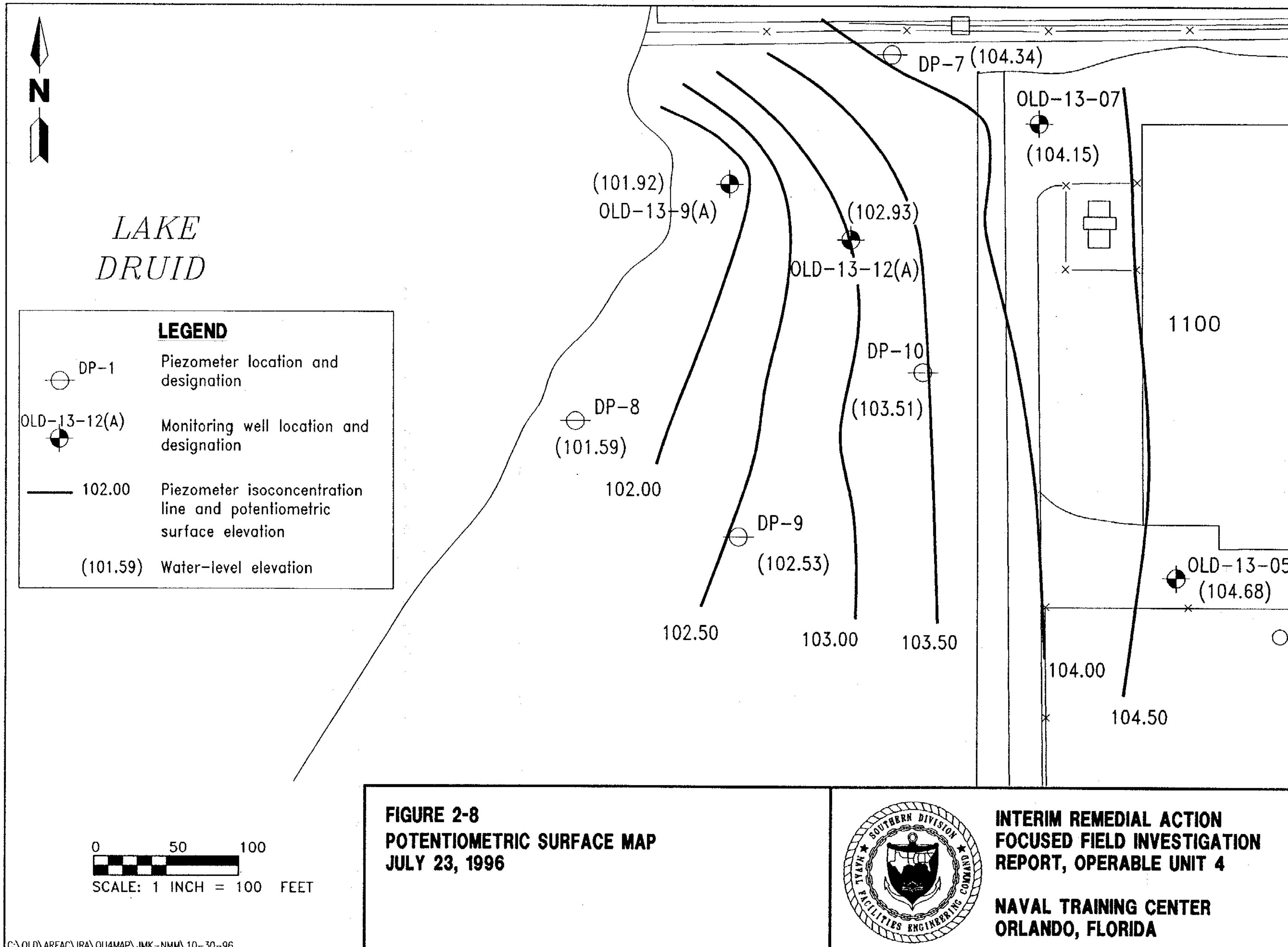

FIGURE 2-8
POTENTIOMETRIC SURFACE MAP
JULY 23, 1996

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lowered into the monitoring well far enough below the water surface to prevent any collisions with the slug. In shallow wells, the transducer was lowered to within 2 feet of the bottom of the well so that accumulated silts that may have been in the bottom of the well would not interfere with the sensing ports.

Time was allowed for the transducer to equilibrate with the new conditions and water level to return to static. The transducer was connected to a Hermit 1000c data logger. After equilibrium was reached, the slug was submerged and the data logger started. The slug test was allowed to run a minimum of 10 minutes so that the step function of the data logger could be used. When the water level had recovered to at least 90 percent of static levels, the test was stopped. The slug was removed swiftly from the well, and the rising head portion of the test was begun. The well was again allowed to recover to 90 percent of static water level before the test was stopped.

The data were downloaded to a computer where it was processed using the method of Bouwer and Rice (1976) as implemented in the Aqtesolv software program. For wells where the top of the screen was above the water table, the plot was analyzed using the double straight line method (Bouwer, 1989) to account for filter pack drainage. The permeability test plots are provided in Appendix J.

2.7.3 Vertical Potential Survey A vertical potential survey was conducted in order to analyze the head potential between the surface water and the groundwater. Six drive point wells were installed in Lake Druid and the creek. As shown on Figure 2-3, the wells were situated with four along the shoreline, one out in the lake, and one in the creek. Head potential was analyzed by measuring the difference in water level between the groundwater inside the well and the surface water outside the well casing. By using the TOC as a reference, a higher water level inside the well than the surface water outside the well indicates an upward potential from the surficial aquifer, i.e., water is flowing from the surficial aquifer into the lake. A lower water level inside the well than the surface water outside the well indicates a downward potential from the lake into the surficial aquifer, i.e., water is flowing from the lake into the aquifer. Table 2-8 presents the results from the head potential survey. An upward potential from the surficial aquifer was measured at each of the six locations.

2.7.4 Seepage Meter As stated in the Interim Remedial Action Focused Field Investigation Work Plan (ABB-ES, 1996b), a seepage meter was to be utilized to measure the rate at which Lake Druid is being fed by the surficial aquifer. ABB-ES fabricated a seepage meter from a 55-gallon drum and some PVC hardware. The seepage meter was tested in Lake Baldwin prior to the field effort and indicated good connection between the lake and the surficial aquifer. In Lake Baldwin, the seepage meter responded during the first 24-hour period with 25 mℓ of groundwater flowing into the meter. The next day, following a heavy rainfall event, the meter recorded 100 mℓ in a 24-hour period. However, in Lake Druid the seepage meter did not show a response. This was probably due to the fact that in order to get a response the seepage meeter must be well-connected, i.e., "sealed," to the lake's bottom. The bottom of Lake Baldwin was mostly sand, allowing for good connection. However, the bottom of Lake Druid has a thick organic mat sitting above the sandy bottom, making it more difficult to get the proper seal. Therefore, seepage rate data from the seepage meter are not available for Lake Druid at this time.

Table 2-8
Head Potential Elevation Survey

Interim Remedial Action
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Well Number	Date	Depth to Water Inside Casing (ft BTOC)	Depth to Water Outside Casing (ft BTOC)	Potential (Upward-U) (Downward-D)
DP-1	5/12/96	2.10	2.21	U
	5/28/96	2.04	2.09	U
DP-2	5/12/96	3.66	3.70	U
	5/28/96	3.54	3.58	U
DP-3	5/28/96	3.86	3.96	U
DP-4	5/28/96	2.86	2.97	U
DP-5	5/28/96	3.46	3.49	U
DP-6	5/28/96	4.34	4.36	U

Note: ft BTOC = feet below top of casing.

3.0 ANALYTICAL PROGRAM

This section summarizes the analytical program for onsite and offsite analysis of soil samples, sediment samples, surface water samples, and groundwater samples collected during Interim Remedial Action Focused Field Investigation at OU 4. All samples were collected in accordance with procedures outlined in the NTC, Orlando Project Operations Plan (ABB-ES, 1994a). In addition, this section assesses onsite and offsite data quality and useability and compares onsite and offsite analytical results.

3.1 ONSITE CHEMICAL ANALYSIS. Samples collected for onsite analysis were analyzed for target VOCs using a GC field laboratory. The analytical methods used were based on standard USEPA Methods SW-846, 5030 (purge and trap preparation), 8000A (GC calibration), 8010A (halogenated volatile organics), and 8020 (benzene, toluene, ethylbenzene, and xylenes [BTEX]) with modifications for field analysis. Table 3-1 summarizes the sampling and analysis program for samples collected for onsite laboratory analysis.

3.1.1 Onsite Analytical Methodology Modifications to the USEPA 8010/8020 Method are summarized in this subsection. Samples were analyzed using a Tekmar 3000 purge and trap concentrator connected to a Hewlett-Packard™ 5890 Series II GC. The GC was set up with the purge and trap unit, and for efficiency, a Tekmar 2016, 16-port automatic sampler was added later in the program. Two detectors, a photoionization detector (PID) for BTEX and an electrolytic conductivity detector (ELCD) for chlorinated hydrocarbons were used. A DB-624 75-meter megabore column was used for compound separation. The following run conditions were established:

Tekmar 3000 purge time = 6 minutes
Tekmar 3000 desorb time = 2 minutes
Tekmar 3000 bake time = 5 minutes
HP 5890 injection port temperature = 180 degrees Celsius (°C)
HP 5890 PID detector port temperature = 275 °C
HP 5890 ELCD detector port temperature = 900 °C
HP 5890 initial oven temperature = 40 °C for 4 minutes
HP 5890 oven temperature ramp = 6 °C per minute
HP 5890 final oven temperature = 180 °C
helium carrier flow = 10 mℓ per minute
hydrogen makeup flow = 110 mℓ per minute

3.1.2 Onsite Performance Criteria The quality control (QC) criteria for the onsite analytical method were established to monitor method performance. An initial three-point calibration for quantitation (low, mid-range, and high concentrations) was performed for each instrument. Target compounds and reporting limits are presented in Table 3-2. Instrument stabilities were monitored every 24 hours with a calibration standard at the mid-range concentration. The quantitation performance criterion for operation was the agreement of the check standard with the three-point calibration curve to within 30 percent. Samples were to be analyzed only if no more than one compound per detector exceeded these criteria. If the standard did not meet this criterion, a second standard was analyzed. If this second standard did not meet criteria, a new calibration curve was prepared.

Table 3-1
Summary of Sampling and Analysis Program for Samples Collected for Onsite Analysis

Interim Remedial Action
Focused Field Investigation Report, Operable Unit 4
Naval Training Center
Orlando, Florida

Type of Sampling	Number of VOC Analyses
Groundwater (Drive Point)	8
Groundwater (Direct Push)	168
Surface Water	59
Sediment	59
Soil	4
Quality Control Samples	
Field Duplicates	27
MS/MSD	18
Equipment Reinstate Blanks	48
Method Blanks	34

Notes: VOC = volatile organic compound.
MS/MSD = matrix spike/matrix spike duplicate.

Table 3-2
Target Compounds and Reporting Limits for Onsite Analysis

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Compound Name	Reporting Limit ($\mu g/\ell$)
Vinyl Chloride	0.1
1,1 Dichloroethene	1.0
trans-1,2-Dichloroethene	0.5
cis-1,2-Dichloroethene	2.0
Trichloroethene	0.5
Tetrachloroethene	0.5
Benzene	0.5
Toluene	0.5
Ethylbenzene	0.5
m/p-Xylene	0.5
o-Xylene	0.5

Note: $\mu g/\ell$ = micrograms per liter.

The identities of the target compounds were based on comparison with the retention times for the standards. Retention time windows of plus or minus 3 percent were established, based on the most recent calibration curve. For some cases, especially VC, the peak was so broad that a 3 percent retention time window was not adequate and operator judgement was applied.

Every 24 hours, a method blank of deionized water was analyzed to confirm that no target compounds were introduced by sample handling and analysis. The method blank criterion was met if no target compounds were present above the reporting limit for the instrument. A surrogate solution containing bromofluorobromine was injected into each sample at a known concentration to determine percentage recoveries. The recovery range of 50 to 150 percent was established for water samples, and the recovery range of 30 to 170 percent was established for soil samples as one of the operating criteria for onsite analysis.

3.2 OFFSITE CHEMICAL ANALYSIS. The overall precision and variability of the field screening program was assessed through the use of split samples, which were analyzed by both the ABB-ES field laboratory and a Naval Energy and Environmental Support Activity (NEESA) certified offsite laboratory. Approximately 10 percent of the environmental samples collected were sent to the offsite laboratory, consisting of 18 groundwater samples (including one field duplicate), 4 surface water samples, and 5 sediment samples.

Presented below is an evaluation of the analytical results for these samples. Onsite samples were analyzed for purgeable VOCs using the field screening methodology described in Subsection 3.1.1. Sediment samples were analyzed offsite for the TCL volatile organics using the CLP Statement of Work (SOW) for Organics Analysis (OLM01.9). Groundwater and surface water samples were analyzed offsite for low level volatile organics, using the Superfund Analytical Method for Low Concentration Organics Analysis (SAMLCO, 10/92). Offsite laboratory results conform to Level D (USEPA Level IV) requirements and were independently reviewed and validated by a subcontractor against Level C requirements using NEESA guidance document 20.2-047B (1988), entitled Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Program.

3.2.1 Offsite Data Comparison Methodology As there are no specific review criteria for split samples in both the NEESA and USEPA CLP documents, the laboratory duplicate precision criteria are utilized in this evaluation. It should be noted, however, that the use of this evaluation procedure may be overly conservative, especially with the sediment samples because the samples were not composited. Compositing environmental samples for determination of volatiles is generally not appropriate. Sediment duplicate results have a greater variance than water matrices due to difficulties associated with collecting identical field samples. Thus, the field samples submitted to both onsite and offsite laboratories are not considered true splits and will more likely result in a greater variability than laboratory duplicates. Split samples measure comparability of field and laboratory results; therefore, the results may have more variability than laboratory duplicates, which measure only laboratory performance. Another source of variability is the different methods used in the analysis, i.e., GC (onsite) versus gas chromatography/mass spectroscopy (GC/MS) (offsite).

The duplicate precision criteria have been routinely used in the NEESA and USEPA CLP to evaluate comparability of laboratory duplicate samples. The same approach can be applied to field duplicates and split samples. Precision is a measure of the agreement or repeatability of a set of replicate results obtained from duplicate laboratory analyses of samples collected from the same location or depth interval. Precision is a quantitative measure that is expressed as the relative percent difference (RPD) between analytical values for two samples from the same source divided by the average of their analytical values. RPD is calculated using the equation

$$RPD = \frac{D_1 - D_2}{\frac{1}{2}\,(D_1 + D_2)} \times 100 \qquad (1)$$

where D_1 and D_2 are the reported values for the duplicate samples.

Laboratory duplicate precision criteria specify that RPDs be no greater than ±20 percent for water samples and ±35 percent for soil samples when both sample results are greater than five times the contract-required quantitation limit (CRQL). It should be noted that primarily because of the greater variability expected in field duplicates, some USEPA regional offices (e.g., Region II) specify that field duplicates be qualified as estimated if RPD is greater than 100 for paired data where sample and duplicate are both greater than five times CRQL.

If the sample and/or duplicate is less than five times the CRQL, the absolute difference criteria, $|D_1 - D_2|$, where D_1 and D_2 are the reported values for the duplicate samples, are used. Field duplicates are qualified as estimated if the absolute difference between the analytical values is greater than CRQL for water samples and two times CRQL for soil samples. No calculations are made if both sample and duplicate are below quantitation limits, i.e., the nondetected parameter pairs are considered to be within control limits.

For this evaluation, the acceptance criteria for evaluating precision of field duplicates are an RPD of 20 for water matrices and an RPD of 35 for soil/sediment matrices. For sample results where one or both samples are below five times CRQL, the absolute difference criteria of less than CRQL for water samples and less than two times CRQL for sediment samples are used. CRQL values of 10 $\mu g/\ell$ (water samples) and 10 $\mu g/kg$ (sediment samples) are used as the proxy concentrations for nondetected parameters in the calculation of absolute difference.

3.3 STATISTICAL COMPARISON OF ONSITE AND OFFSITE LABORATORY RESULTS. A comparison of the field screening results and the offsite laboratory results for VOCs is presented in Tables 3-3, 3-4, and 3-5. Only those compounds with at least one detection in at least one sample (field lab or offsite laboratory) are shown and evaluated for each matrix (groundwater, surface water, and sediment). If all nondetected compounds analyzed in both the onsite and offsite laboratories are included in the calculations, the percent parameter pairs that are out of control for either the RPD or absolute difference criteria are significantly reduced.

A statistical summary of the results is presented in Table 3-6. The following is a summary of the major findings.

Table 3-3
Comparison of Analytical Results Between Onsite and Offsite Laboratory Surface Water Samples

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Identifier: Sample Date:	U4W00201 May 7, 1996	U4W00201F May 7, 1996		U4W01201 May 9, 1996	U4W01201F May 9, 1996	
			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	1.1	8.9	--	0.9	9.1
1,2-Dichloroethene (total)	--	243	233.0*	170	180.7	**6.1**
Tetrachloroethene	54	63	**15.4**	--	--	--
Toluene	--	--	--	7	7.2	0.2
Trichloroethene	800	150	**136.8***	5	5.6	0.6
Vinyl chloride	--	12	2.0	54	83	**42.3***
Identifier: Sample Date:	**U4W03101 May 13, 1996**	**U4W03101F May 13, 1996**		**U4W03401 May 15, 1996**	**U4W03401F May 15, 1996**	
			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	--	--
1,2-Dichloroethene (total)	1	--	9.0	1	--	9.0
Tetrachloroethene		0.4	9.6	--	--	--
Toluene	1 J	--	9.0	--	--	--
Trichloroethene	--	--	--	--	--	--
Vinyl chloride	1 J	1.5	0.5	--	--	--

Notes: Sample identifiers ending in F (e.g., U4D00201F) are split samples analyzed in the onsite laboratory while Sample identifiers ending in 01 (e.g., U4D00201) are split samples analyzed by an offsite laboratory. Analytical results expressed in micrograms per kilogram (μg/kg) for sediment samples and micrograms per liter (μg/ℓ) for groundwater and surface water samples.

-- = nondetected.
J = reported concentration is an estimated quantity.
RPD = relative percent difference. Paired results evaluated using the RPD criteria are bold.
|D| = absolute difference. Paired results evaluated using this criteria include results where one or both detected results are below five times contract-required limits (CRQL). The CRQL of 10 μg/kg or μg/ℓ is used as the proxy for nondetected parameters.
* = indicates that either the RPD or |D| criterion is exceeded for the particular pair.
NA = not applicable.

Table 3-4
Comparison of Analytical Results Between Onsite and Offsite Laboratory
Sediment Samples

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Identifier:	U4D00201	U4D00201F		U4D01201	U4D01201F		U4D03101	U4D03101F		U4D03501	U4D03501F	
Sample Date:	7-MAY-96	7-MAY-96		9-MAY-96	9-MAY-96		13-MAY-96	13-MAY-96		15-MAY-96	15-MAY-96	
			RPD or |D|			RPD or |D|			RPD or |D|			RPD or |D|
1,2-Dichloroethene (total)	46	112.1	66.1*	130	3,028	183.5*	5 J	--	5.0	2 J	5.7	3.7
Tetrachloroethene	300 D	92	106.1*	24 J	43	19.0	48	--	38.0*	--	--	--
Toluene	--	--	--	--	2.3	7.7	--	--	--	--	--	--
Trichloroethene	760 D	220	110.2*	570 D	1,400	84.3*	330	--	320.0*	6 J	15	9.0
Vinyl Chloride	--	0.4	9.6	--	53	43.0*	--	--	--	--	--	--

See notes at end of table.

Table 3-4 (Continued)
Comparison of Analytical Results Between Onsite and Offsite Laboratory Sediment Samples

Interim Remedial Action
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Identifier:	U4D04201	U4D04201F	
Sample Date:	21-MAY-96	21-MAY-96	
			RPD or |D|
1,2-Dichloroethene (total)	--	--	--
Tetrachloroethene	--	--	--
Toluene	2 J	--	8.0
Trichloroethene	--	0.7	9.3
Vinyl Chloride	--	--	--

Notes: Sample identifiers ending in F (e.g., U4D00201F) are split samples analyzed in the onsite laboratory.
Sample identifiers ending in 01 (e.g., U4D00201) are split samples analyzed by an offsite laboratory.
Analytical results expressed in micrograms per kilogram (μg/kg) for sediment samples and micrograms per liter (μg/ℓ) for groundwater and surface water samples.

-- = nondetected.
NA = not applicable.
RPD = relative percent difference.
|D| = absolute difference. Paired results evaluated using the RPD criteria include results where one or both detected results are below 5 times contract required quantiTation limits (CRQL). The CRQL of 10 μg/kg or μg/ℓ is used as the proxy for nondetected parameters.
* = either the RPD or |D| criteria is exceeded for the particular pair.
J = reported concentration is estimated quantity.
D = reported concentration is from a dilution analysis.

Table 3-5
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater Samples

Interim Remedial Action
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Identifier:	U4Q00107	U4Q00107F		U4Q00205	U4Q00205F		U4Q00207	U4Q00207F		U4Q00307	U4Q00307F	
Sample Date:	21-MAY-96	21-MAY-96		23-MAY-96	23-MAY-96		23-MAY-96	23-MAY-96		24-MAY-96	24-MAY-96	
Depth (ft bls):	26-28	26-28		24-26	24-26		32-34	32-34		22-24	22-24	
			RPD or |D|			RPD or |D|			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	7	8.8	1.8	--	--	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	10	11	1.0	--	--	--	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3-5 (Continued)
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater Samples

Interim Remedial Action
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Identifier:	U4Q00310	U4Q00310F		U4Q00403	U4Q00403F		U4Q00418	U4Q00418F		U4Q00426	U4Q00426F	
Sample Date:	24-MAY-96	24-MAY-96		13-MAY-96	13-MAY-96		28-MAY-96	28-MAY-96		28-MAY-96	28-MAY-96	
Depth (ft bls):	52-54	52-54		6-8	6-8		41-43	41-43		57-59	57-59	
			RPD or |D|			RPD or |D|			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	1.6	8.4	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	--	--	--	1,200	1,190.0*	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	1.7	8.3	0.6 J	0.8	0.2	2.0	4.3	2.3
Toluene	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	290	270	7.1	--	0.8	9.2	0.7 J	1	0.3
Vinyl Chloride	--	--	--	--	3	7.0	--	--	--	--	--	--

See notes at end of table.

Table 3-5 (Continued)
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater Samples

Interim Remedial Action
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Identifier:	U4Q00504	U4Q00504F		U4Q00802	U4Q00802F		U4Q00803	U4Q00803F		U4Q00805	U4Q0085F	
Sample Date:	29-MAY-96	29-MAY-96		14-MAY-96	14-MAY-96		3-JUN-96	3-JUN-96		3-JUN-96	3-JUN-96	
Depth (ft bls):	24-26	24-26		6-8	6-8		18-20	18-20		30-32	30-32	
			RPD or |D|			RPD or |D|			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	1.6	8.4	--	--	--	--	3.2	6.8	--	--	--
Tetrachloroethene	280 D	300	6.9	--	--	--	17	15	2.0	--	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	4	5	1.0	--	--	--	8	7	1.0	4	16	12.0*
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3-5 (Continued)
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater Samples

Interim Remedial Action
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Identifier:	U4Q01004	U4Q01004F		U4Q01011	U4Q01011F		U4Q01109	U4Q01109F		U4Q01202	U4Q01202F	
Sample Date:	16-MAY-96	16-MAY-96		1-JUN-96	1-JUN-96		31-MAY-96	31-MAY-96		4-JUN-96	4-JUN-96	
Depth (ft bls):	10-12	10-12		30-32	30-32		30-32	30-32		6-8	6-8	
			RPD or |D|			RPD or |D|			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	4	4.0	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	12	2.0	--	75	75.0*	--	1.8	8.2	--	--	--
Tetrachloroethene	--	--	--	10,000	2,600	117.5*	6	6.4	0.4	--	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	5	4.8	0.2	25,000	3,800	147.2*	4	4.6	0.6	0.7 J	--	9.3
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--	--	--

See notes at end of table.

Table 3-5 (Continued)
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater Samples

Interim Remedial Action
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Identifier:	U4Q01202D	04Q01202DF		U4101205	04Q01205F	
Sample Date:	4-JUN-96	4-JUN-96		4-JUN-96	4-JUN-96	
Depth (ft bls):	6-8	6-8		2-24	22-24	
			RPD or |D|			RPD or |D|
1,1-Dichloroethene	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	--	--	--	--	--
Tetrachloroethene	--	--	--	6	6.2	0.2
Toluene	--	--	--	--	--	--
Trichloroethene	0.6 J	--	9.4	2	1.3	0.7
Vinyl Chloride	--	--	--	--	--	--

Notes: Sample identifiers ending in F (e.g., U4Q00310F) are split samples analyzed in the onsite laboratory, while sample identifiers without an F (e.g., U4Q00310) are split samples that were analyzed in an offsite laboratory.
Analytical results expressed in micrograms per kilogram (μg/kg) for sediment samples and micrograms per liter (μg/ℓ) for groundwater and surface water samples.

ft bls = feet below land surface.
-- = nondetected.
RPD = relative percent difference
|D| = absolute difference. Paired results evaluated using the RPD criteria include results where one or both detected results are below 5 times contract required quantitation limits (CRQL). The CRQL of 10 μg/kg or μg/ℓ is used as the proxy for nondetected parameters.
* = either the RPD or |D| criteria is exceeded for the particular pair.
J = reported concentration is estimated quantity.
D = reported concentration is from a dilution analysis.

Table 3-6
Comparison of Analytical Results Between Onsite and Offsite Laboratory Groundwater, Surface Water, and Sediment Samples

Interim Remedial Action
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	Summary Statistics	Groundwater		Surface Water		Sediment	
		Number	Percent	Number	Percent	Number	Percent
A	Total number of sample pairs (onsite and offsite).	18	--	4	--	5	--
B	Total number of evaluated parameters pairs (limited only to parameters with at least one detection in at least one onsite or offsite sample submitted).	108	--	24	--	25	--
C	Total number of parameter pairs detected in both onsite and offsite sample pair (percent = C/B).	18	17	7	29	8	32
D	Total number of parameter pairs with no detections in both onsite and offsite sample pair (percent = D/B).	77	71	9	38	9	36
E	Total number of parameter paris with detection in either onsite or offsite sample (percent = E/B).	13	12	8	33	8	32
	Total number of parameter pairs out of control for the RPD or absolute difference criteria.	--	--	--	--	--	--
F	Detected in both onsite and offsite samples (percent = F/B).	3	3	2	8	5	20
G	Detected in either onsite or offsite samples (percent - G/B).	2	2	1	4	3	12
H	Total out of control parameter pairs (percent = H/B).	5	5	3	13	8	32

Notes: RPD = relative percent difference.
-- = nondetected.

3.3.1 Groundwater Analytical results of 18 paired groundwater samples indicated excellent precision with much less variability than expected in water matrices. Three out of the 18 samples have at least one parameter pair outside of control limits. Only 5 out of 108 parameter pairs evaluated (4.6 percent of the total) failed the RPD or |D| criteria, even while using conservative laboratory duplicate criteria. These results indicate very good comparability of the field screening data with those of the higher data quality generated by the offsite laboratory.

3.3.2 Surface Water Analytical results of four paired surface water samples indicated good precision. Only 5 out of 24 parameter pairs evaluated (13 percent of the total) failed the RPD or |D| criteria. These results indicate good comparability of the field screening surface water data with those of the higher data quality generated by the offsite laboratory.

3.3.3 Sediment Analytical results of five paired sediment samples show a greater variability in VOC concentrations, likely indicating a heterogeneous sediment matrix. Three out of five sediment samples have at least one parameter pair outside of control limits. Eight out of 25 parameter pairs (32 percent) evaluated were out of control, including 5 pairs with detections in both onsite and offsite samples and 3 pairs with one detection in either the onsite or offsite sample.

4.0 INVESTIGATIVE RESULTS

The investigative results are to support the decision path within the project logic diagram and to refine the SCM.

4.1 GEOLOGIC AND HYDROGEOLOGIC INVESTIGATIVE RESULTS. Stratigraphic information was obtained from four piezocone penetrations at OU 4: from the north and south sides of the creek, near the northern property line, and east of Lake Druid just above the creek's beginning (Figure 2-2). Estimates of hydraulic conductivity were made from the slug test performed on four monitoring wells screened in three different intervals of the aquifer. Drive point wells were installed both in the lake and on land to analyze vertical head potential between the lake and the surficial aquifer and to assess groundwater flow across the site. Figures 2-3 and 2-6 show the drive point wells and monitoring wells where head potential surveying, groundwater elevation surveying, and slug testing occurred.

4.1.1 Piezocone Results Physical data gathered during piezocone penetrations are presented in Appendix B. Depths of piezocone penetrations ranged from the ground surface to 68 feet bls; however, because penetration was not possible, no data were collected from actually within the identified high density layer, approximately 14 to 20 feet deep. The piezocone data indicate that the subsurface is composed of layers of fine sand interbedded with silty and/or clayey fine sand. The density of the layers, as interpreted from the piezocone data, is generally medium dense and dense. No strata were identified that would act as a confining layer or barrier to vertical contaminant migration. The piezocone data compared vary consistently with the boring log data generated through split-spoon samples.

4.1.2 Slug Test Results Slug test data were plotted using Aqtesolv™ to estimate permeability at specific intervals in the aquifer. The permeability test plots are provided in Appendix J. Hydraulic conductivity estimates associated with the slug tests are generally consistent over the sampling area and with depth. The hydraulic conductivity estimates have been tabulated and are presented in Table 4-1. Fourteen estimates were obtained. Hydraulic conductivity estimates range from 1.323×10^{-3} centimeters per second (cm/sec) to 4.323×10^{-3} cm/sec. Geometric means were calculated for each of the three depth intervals. The geometric mean of the hydraulic conductivities ranges from 4.071×10^{-3} cm/sec for the lowermost interval (just above the Hawthorn) to 1.362×10^{-3} cm/sec for the uppermost depth interval (water table well). These data indicate that the surficial aquifer is relatively homogeneous and that hydraulic conductivity values decrease slightly with depth.

Seepage velocities were calculated using hydraulic conductivity values from the newly installed monitoring wells in the wooded area of the site and an average hydraulic gradient of 0.012 foot per foot. This hydraulic gradient is based on water level measurements obtained on July 23, 1996, at the existing monitoring wells, newly installed monitoring wells, and drive point wells. These water levels represent the water table surface as shown on Figure 2-8. Based on these data, groundwater flow within the surficial aquifer is toward the west. Flow is assumed to be Darcian (i.e., laminar, not turbulent) and the effective porosity is assumed to be 25 percent. Seepage velocities calculated from these data and assumptions range from approximately 0.26 foot per day (ft/day) to 0.78 ft/day. Contaminant migration is affected by dispersive movement and actual hydraulic

Table 4-1
Slug Test Hydraulic Conductivity Results

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Well ID	Slug In/Out	ft/min	ft/day	gpd/ft^2	cm/sec	Comments
OLD-13-09A	OUT	3.964×10^{-3}	5.708	42.70	2.014×10^{-3}	Shallow Water Table Well
	OUT	3.964×10^{-3}	5.708	42.70	2.014×10^{-3}	
	OUT	4.064×10^{-3}	5.852	43.77	2.065×10^{-3}	
Average		3.997×10^{-3}	5.756	43.06	2.031×10^{-3}	
Geometric Mean		3.997×10^{-3}	5.756	43.05	2.031×10^{-3}	
OLD-13-12A	OUT	2.761×10^{-3}	3.976	29.74	1.403×10^{-3}	Shallow Water Table Well
	OUT	2.604×10^{-3}	3.750	28.05	1.323×10^{-3}	
	OUT	2.678×10^{-3}	3.856	28.85	1.360×10^{-3}	
Average		2.681×10^{-3}	3.861	28.88	1.362×10^{-3}	
Geometric Mean		2.680×10^{-3}	3.860	28.87	1.362×10^{-3}	
OLD-13-10B	IN	3.99×10^{-3}	5.746	42.98	2.027×10^{-3}	Intermediate Well Screened in Dense Layer
	IN	4.036×10^{-3}	5.812	43.47	2.050×10^{-3}	
	OUT	4.389×10^{-3}	6.320	47.27	2.230×10^{-3}	
	OUT	4.509×10^{-3}	6.493	48.57	2.291×10^{-3}	
Average		4.231×10^{-3}	6.093	45.57	2.149×10^{-3}	
Geometric Mean		4.225×10^{-3}	6.084	45.51	2.146×10^{-3}	
OLD-13-14C	IN	7.845×10^{-3}	11.30	84.50	3.985×10^{-3}	Deep Well Screened Just Above Hawthorn
	IN	7.808×10^{-3}	11.24	84.10	3.966×10^{-3}	
	OUT	8.509×10^{-3}	12.25	91.65	4.323×10^{-3}	
	OUT	7.914×10^{-3}	11.40	85.24	4.020×10^{-3}	
Average		8.019×10^{-3}	11.55	86.37	4.074×10^{-3}	
Geometric Mean		8.014×10^{-3}	11.54	86.32	4.071×10^{-3}	
Total Average		4.931×10^{-3}	7.101	53.11	2.505×10^{-3}	
Total Geometric Mean		4.547×10^{-3}	6.548	48.98	2.310×10^{-3}	

Notes: ID = identification.
ft/min = feet per minute.
ft/day = feet per day.
gpd/ft^2 = gallons per day per square foot.
cm/sec = centimeters per second.

gradient (which may vary horizontally and vertically within the aquifer). Seepage velocities calculated from slug test data are ordinarily taken as an order of magnitude estimate. A pumping test would be required for further accuracy.

As shown in Table 2-8, the vertical head potential survey indicates an upward vertical gradient from the surficial aquifer to Lake Druid at each of the drive point wells. This supports the conceptual model as to the transfer of groundwater into Lake Druid.

4.2 LAKE DRUID INVESTIGATION. Surface water and sediment samples were analyzed by an onsite laboratory for the following parameters: VC, 1,1-DCE, trans-1,2-DCE, cis-1,2-DCE, trichloroethene, tetrachloroethene, benzene, toluene, ethylbenzene, m/p-xylene, and o-xylene. Analytical results are provided in Appendix K. Of the 59 surface water samples and 59 sediment samples, 10 surface water samples and 5 sediment samples were sent to an offsite lab for confirmatory analyses. Results of the offsite analyses are provided in Appendix L.

4.2.1 Surface Water Chlorinated solvents and/or toluene were detected in 39 of the surface water samples. The highest concentration of chlorinated surface water was in sample U4W01001F, located near the mouth of the creek. VOC concentrations decreased both north and south of the creek along the lake perimeter and westward out into the lake. However, VOCs were detected in the lake as far as 200 feet from shore. The highest toluene concentrations were detected in surface water along the lakeshore south of the creek. Figure 4-1 shows the extent of total chlorinated VOC contamination in Lake Druid based on the onsite lab analytical results.

Florida surface water standards for PCE, TCE, and/or 1,1-DCE were exceeded at three locations. There are no surface water standards for cis-1,2-DCE, VC, or toluene.

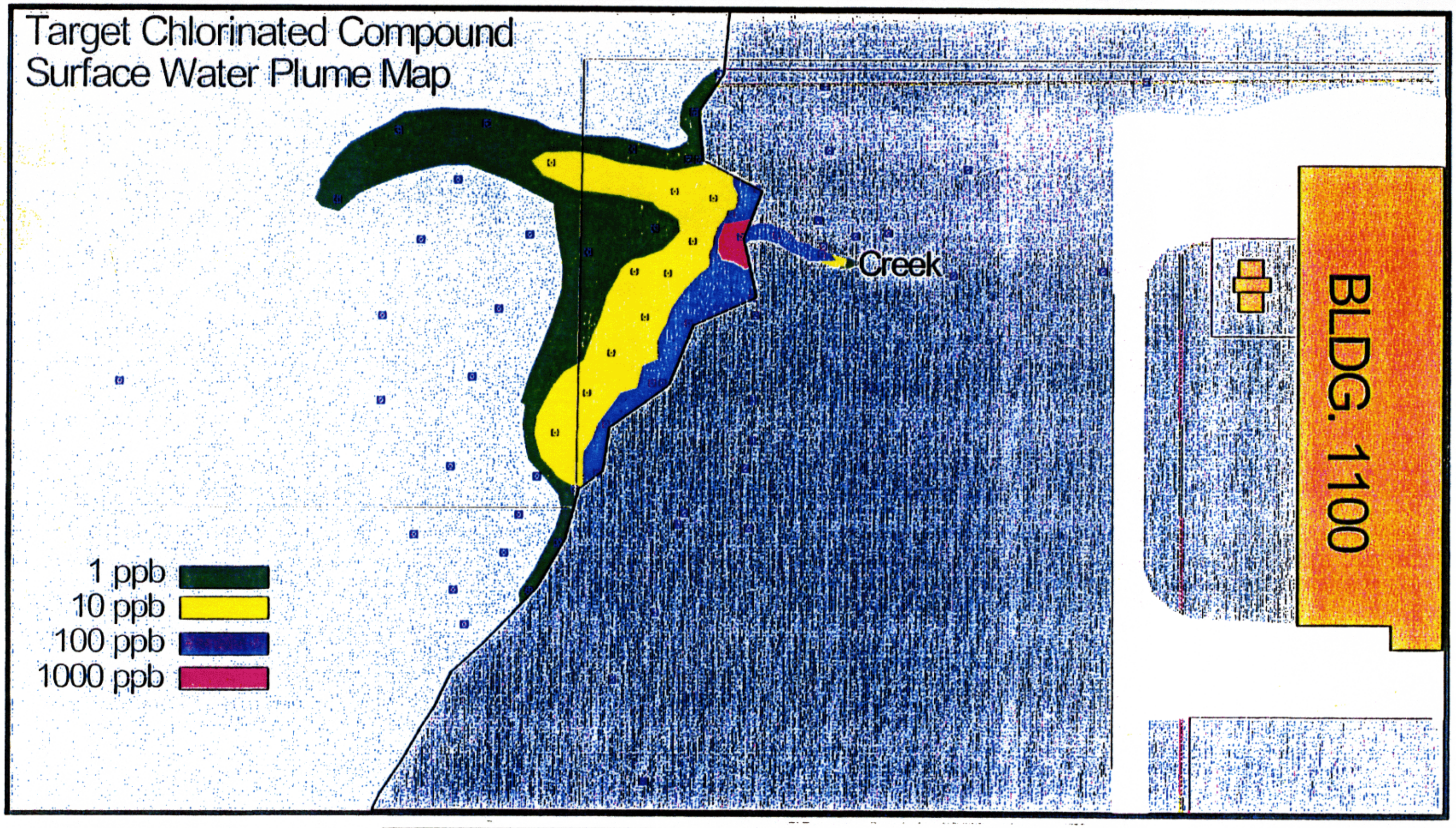
4.2.2 Sediment Chlorinated VOCs, toluene, and/or xylene were detected in 45 of the sediment samples. The highest concentration of chlorinated VOCs in sediment was presented in sample U4D01001F, located near the mouth of the creek (same location as U4W01001F). The extent of VOCs in sediment mirrors the extent of surface water VOCs; however, the VOC concentrations in sediment are much higher than in surface water. Figure 4-2 shows the extent of total chlorinated VOCs in Lake Druid based on the onsite lab analytical results.

Three sediment samples were collected from two locations for various biological indicator parameters. Parameters used for a preliminary evaluation of biodegradation potential included methane, ethylene, ethane, ammonia and nitrate-nitrogen, phosphate (ortho), chloride, sulfate, sulfide, TOC, and pH. The results of the analysis are included in Appendix M.

The presence of methane in two sediment samples indicates methanogenic (anaerobic) conditions. The presence of ethylene and ethane may be indicative of natural anaerobic reduction of the chlorinated solvents.

A more thorough evaluation of conditions in the lake and in the aquifer will be necessary before firm conclusions can be reached.

MAY 2, 1996 THROUGH JUNE 5, 1996



NOTE:
VOC = volatile organic compound

FIGURE 4-1
PLAN VIEW: SURFACE WATER VOC CONCENTRATIONS

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

8519-08-X04 FIG 4-1 110696MAW

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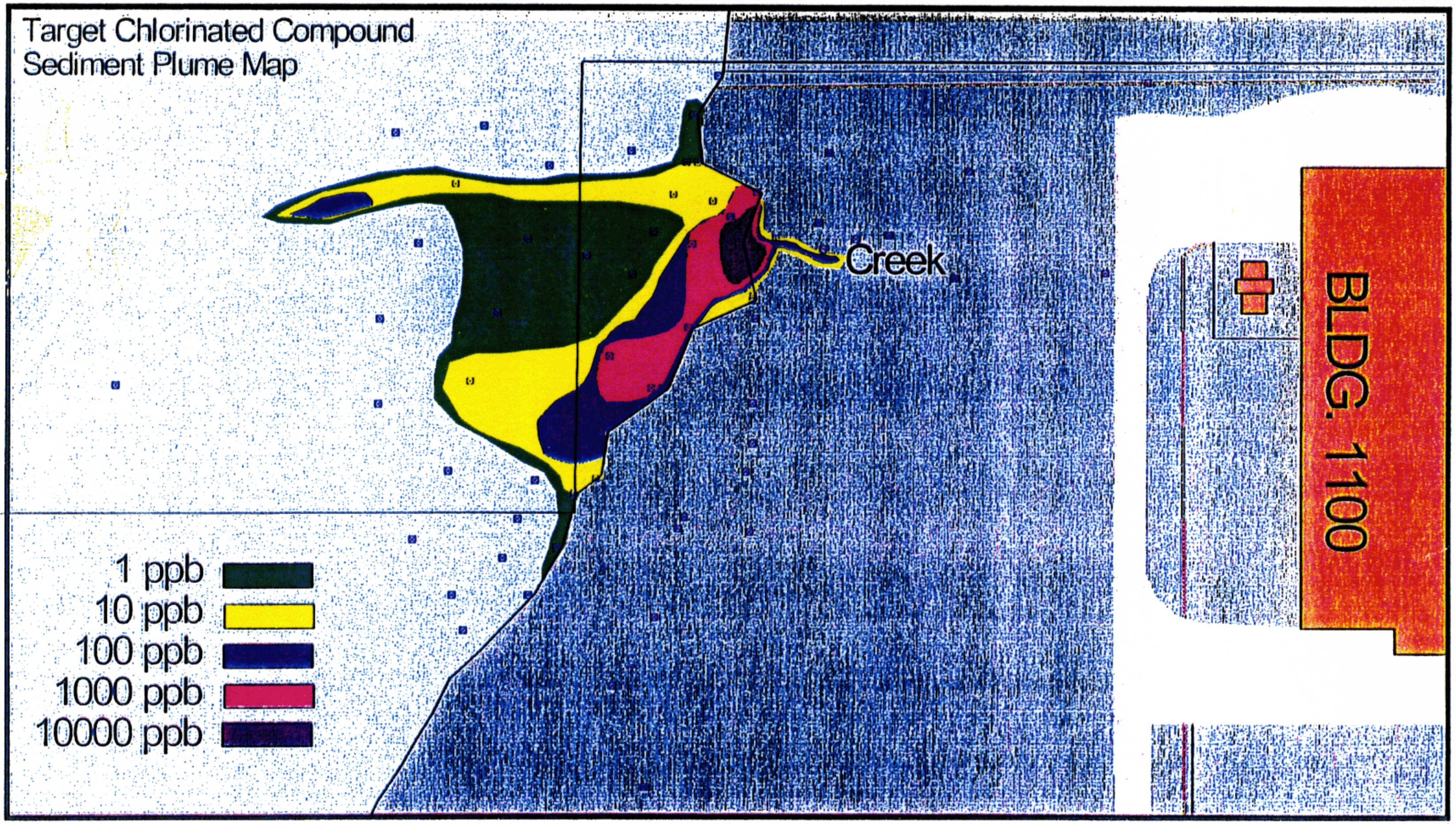
MAY 2, 1996 THROUGH JUNE 5, 1996



NOTE:
VOC = volatile organic compound

FIGURE 4-2
PLAN VIEW: SEDIMENT VOC CONCENTRATIONS

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

8519-08-X04 FIG 4-2 110696MAW

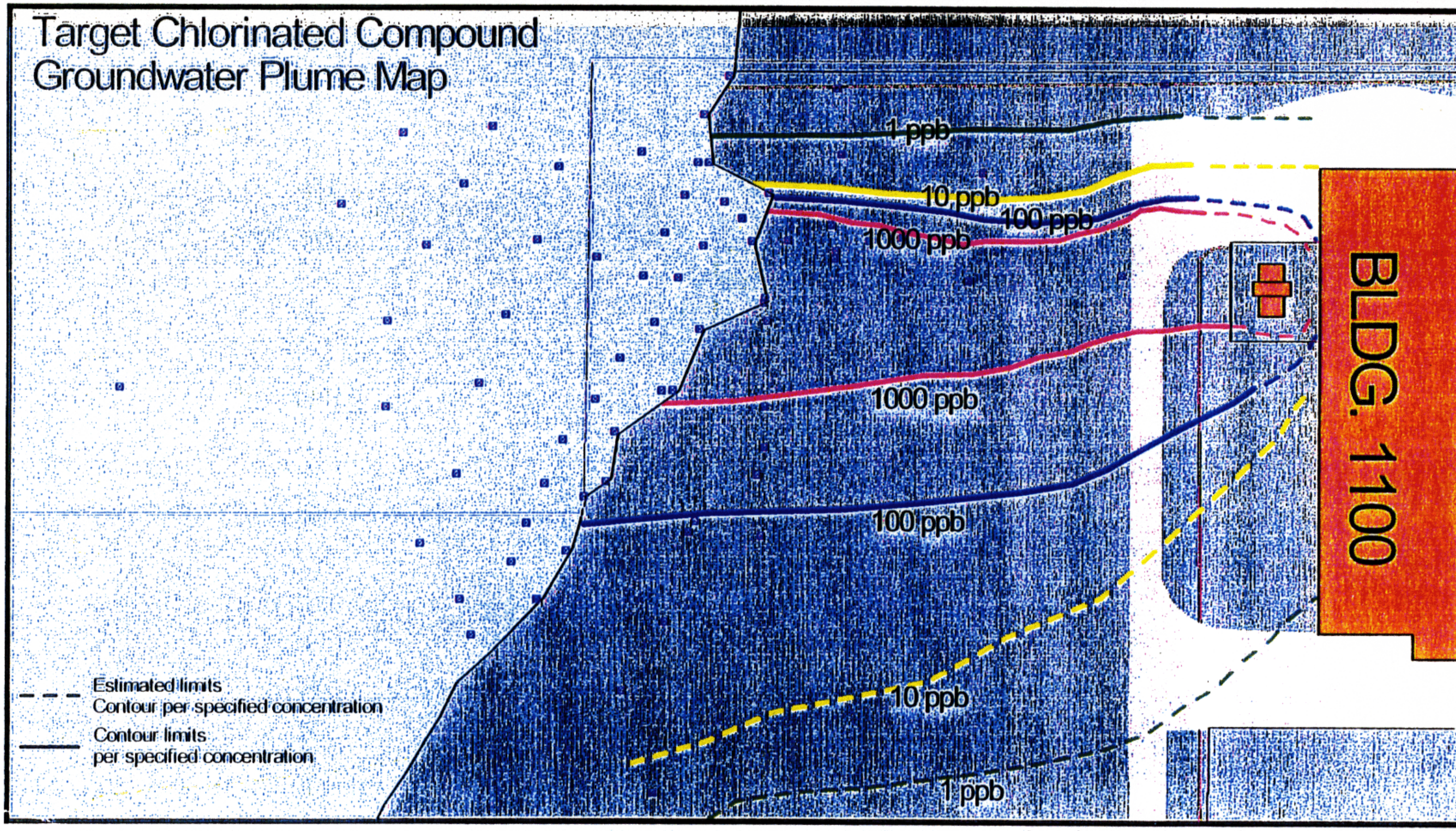
4.3 GROUNDWATER INVESTIGATION. One hundred seventy-six groundwater samples, including 18 duplicate samples, were collected from the 13 locations along the shoreline and within the woods at OU 4. Figure 2-2 shows locations where groundwater samples were collected via DPT. Analytical data from onsite analyses are presented in Appendix K. Ten percent of the groundwater samples, including duplicates, were submitted to an offsite laboratory for confirmatory analysis of the onsite data. Validated analytical data from the offsite analyses are presented in Appendix L.

The southernmost DPT location along the shoreline of Lake Druid was location U4Q012 (Figure 4-3). Seven groundwater samples were collected from sample depths ranging from 6 to 60 feet bls. Target VOCs were detected in the six samples, including PCE and TCE above Florida maximum containment levels (MCLs). Although above MCLs, VOC concentrations at this location were much lower than other areas along the lakeshore. Location U4Q012 is likely very close to the southern edge of the chlorinated VOC plume. Two samples from location U4Q012 (6 to 8 ft bls and 26 to 28 feet bls) were submitted for offsite confirmatory analysis. The offsite data confirmed the presence of low concentrations of the target VOCs in the sample.

The northernmost DPT locations along the shoreline of Lake Druid were U4Q002 and U4Q003 (Figure 4-3). Twenty-two groundwater samples were collected from sample depths ranging from 5 ft to 62 ft bls. VOCs were detected in groundwater samples from location U4Q002 at low concentrations approximately 50 feet from the northern boundary of the base. Concentrations of total target VOCs ranged from nondetect to 7.1 $\mu g/\ell$. VC was not detected based on onsite laboratory data. Sample depths at U4Q003 ranged from 6 to 62 ft bls. Of the 11 groundwater samples collected from U4Q003, VOCs were detected in only 2. Although VOCs were detected, location U4Q003 is likely very close to the northern edge of the chlorinated VOC plume. Concentrations of total target VOCs ranged from nondetect to 10.0 $\mu g/\ell$; VC was not detected based on onsite laboratory data. Two samples from location U4Q002 (24 to 26 ft bls and 32 to 34 feet bls) and two samples from location U4Q003 (22 to 24 ft bls and 52 to 54 ft bls) were submitted for offsite confirmatory analysis. The offsite data confirmed that target VOCs were not present in the samples at these intervals.

Figure 4-4 is a cross section showing the distribution and concentration of total VOCs in groundwater along the shoreline of Lake Druid running north-south. The cross section is based on onsite laboratory GC data. Figure 4-5 shows the location of the cross-section line. Total VOC concentrations for target compounds detected in groundwater samples from locations along the shoreline of the site ranged from nondetect to 1605 $\mu g/\ell$. The data indicate that the maximum depth of contamination where target VOCs were detected along the lakeshore is approximately 61 feet bls (U4Q001). Based on the contours on Figure 4-4, the approximate maximum depth of contamination above 10 $\mu g/\ell$ for total VOCs is 52 feet bls. The minimum depth of VOC contamination in the area along the lakeshore is estimated to be approximately 4 feet bls. The water table was approximately 1.5 feet bls. VC was not detected at any of the locations along the lakeshore.

Figure 4-6 is a cross section showing the distribution and concentration of total VOCs in groundwater running east-west in the vicinity of the creek. The cross section is based on onsite laboratory GC data. Figure 4-5 shows the location of the cross-section line. Total VOC concentrations for target compounds detected in groundwater samples from locations along the east-west line ranged from



NOTE:
VOC = volatile organic compound

FIGURE 4-3
PLAN VIEW: GROUNDWATER VOC CONCENTRATIONS

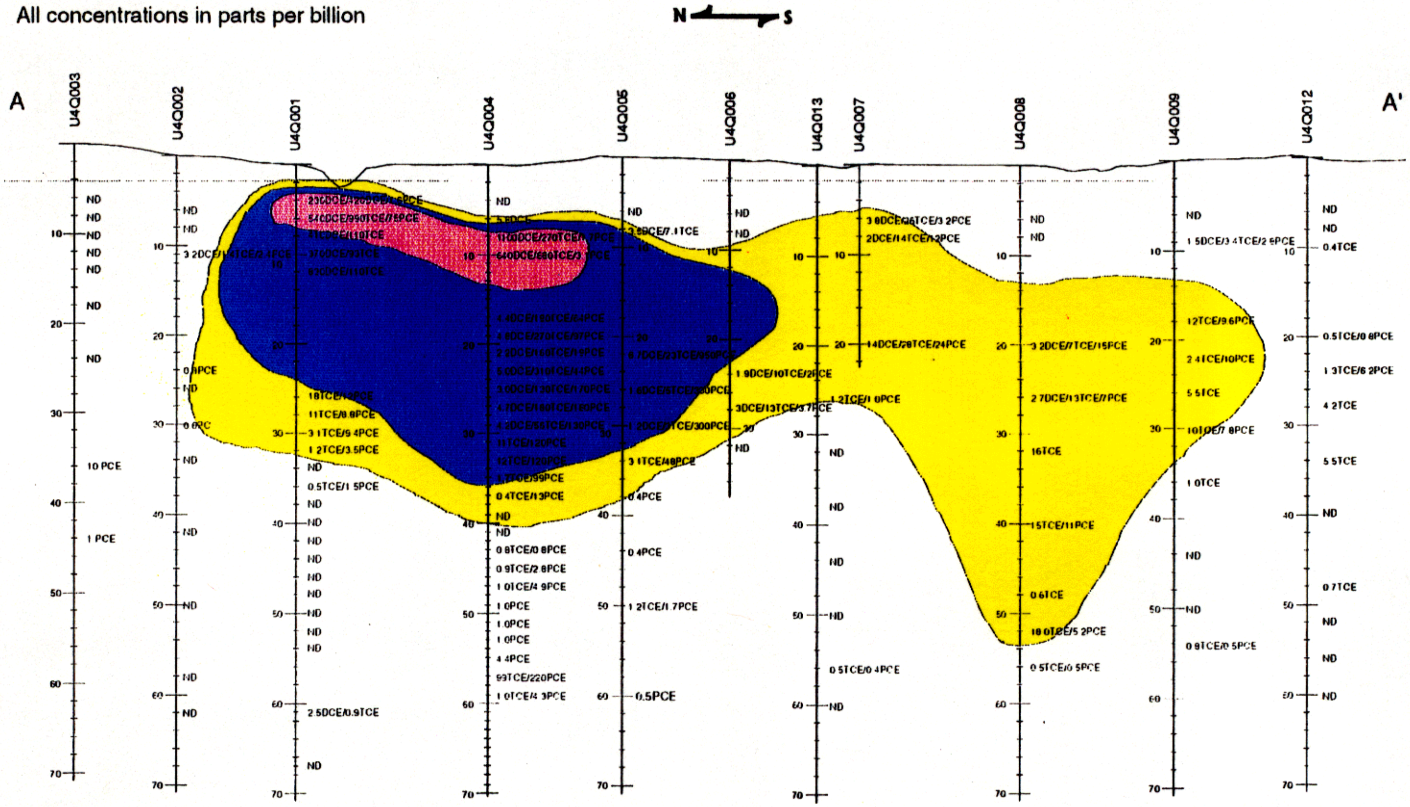
INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

8519-08-X04 FIG 4-3 110696MAW

00444GB4Y

All concentrations in parts per billion



Contaminant	MCL (ppb)
(VC) Vinyl Chloride	1.0
(TCE) Trichloroethylene	3.0
(PCE) Tetrachloroethylene	3.0
(DCE) cis-Dichloroethylene	70.0

Concentration Color	Total VOC's
Yellow	10
Blue	100
Pink	1000

Vertical Scale (ft) 0 8 16

Horizontal Scale (ft) 0 30 60

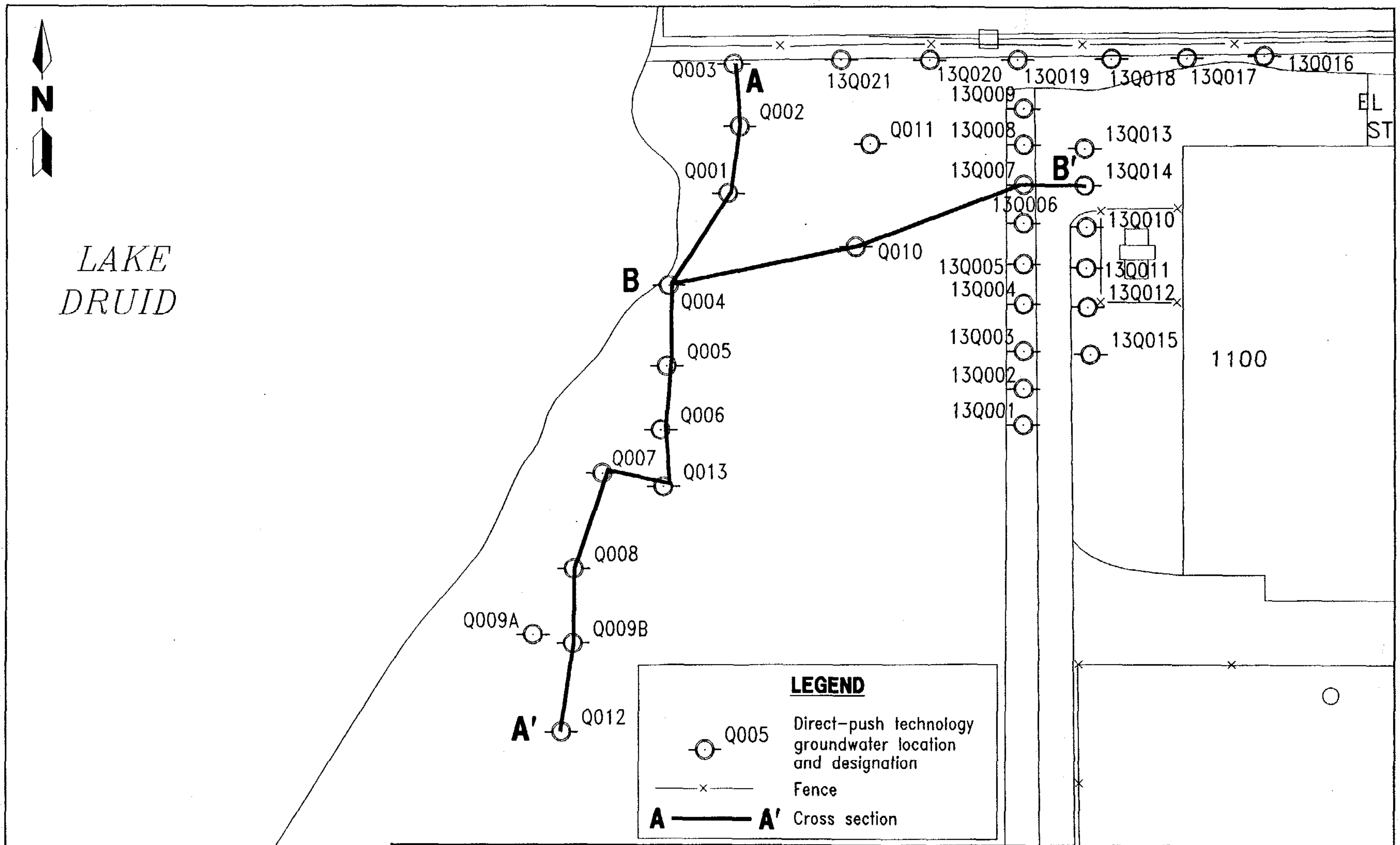
NOTE:
VOC = volatile organic compound

FIGURE 4-4
NORTH-SOUTH GROUNDWATER VOC CONCENTRATION CROSS SECTION A-A'

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

8519-08-X04 FIG 4-4 110696MAW



0 50 100
SCALE: 1 INCH = 100 FEET

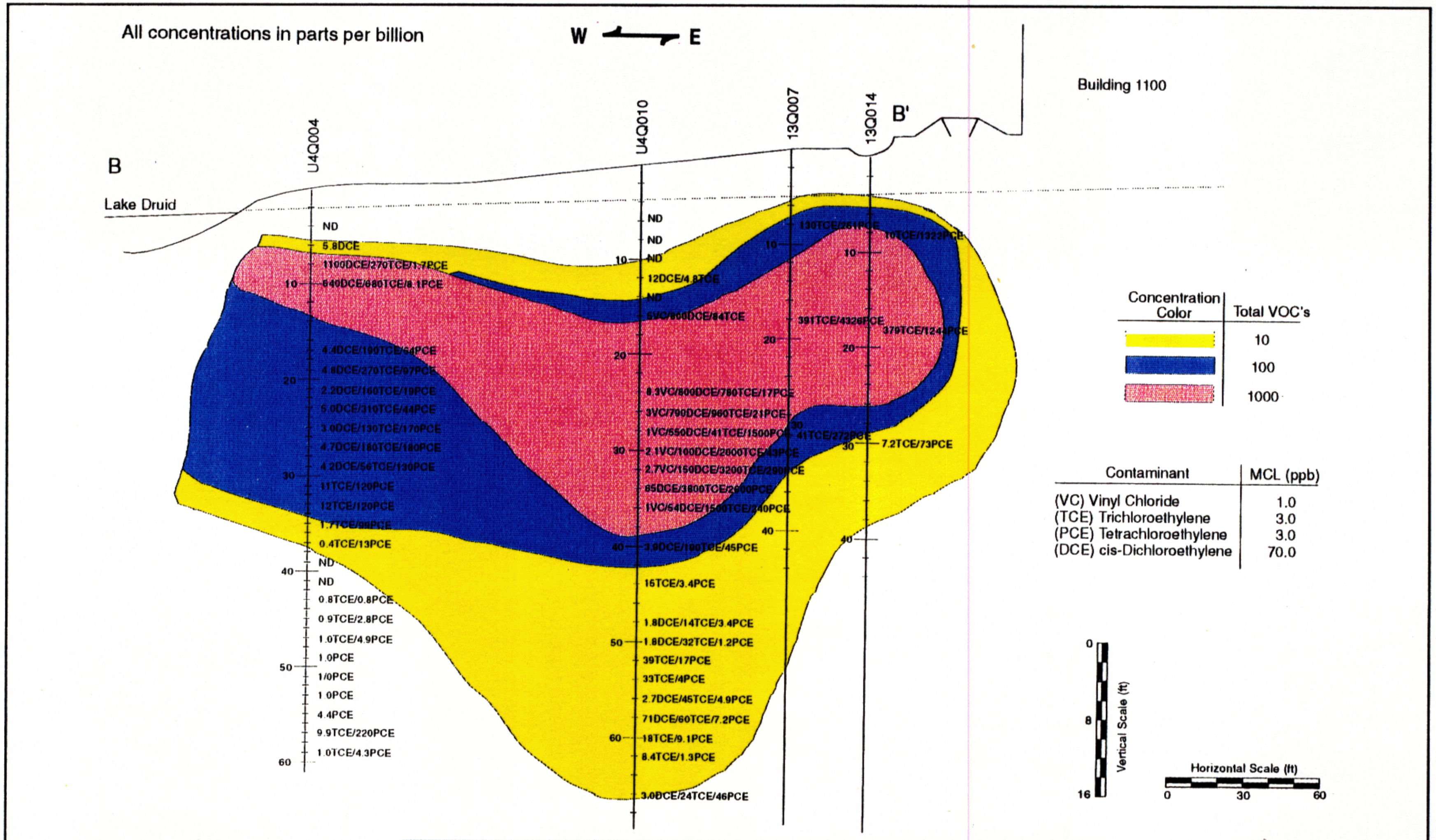
C:\OLD\AREAC\IRA\OU4MAP\JMK-NMM\10-30-96

FIGURE 4-5
PLAN VIEW
CROSS-SECTION LINES

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA



NOTE:
VOC = volatile organic compound

FIGURE 4-6
EAST-WEST GROUNDWATER VOC CONCENTRATION CROSS SECTION B-B'

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

8545-71 FIG 4-6 050197MAW

nondetect to 6465 $\mu g/\ell$. The data indicated that the maximum depth of contamination where target VOCs were detected along the east-west line is approximately 66 feet bls (U4Q010). Based on the contours in Figure 4-6, the approximate maximum depth of contamination above 10 $\mu g/\ell$ for total VOCs is also 66 feet bls. The minimum depth of VOC contamination in the area of the east-west line is estimated to be approximately 6 feet bls. The water table in this area ranged from 1.5 to 5.0 feet bls. VC was detected at location U4Q010 at depths ranging from 24 feet to 36 feet bls.

Groundwater samples were also collected from six drive point wells (DP-1 through DP-6) installed in Lake Druid at the locations shown on Figure 2-3 and the six monitoring wells installed as two clusters of three shown on Figure 2-6. The onsite laboratory results from the drive point wells are identified as samples U4G001xx through U4G006xx for wells DP-1 through DP-6, respectively, and are included in Appendix K. Offsite laboratory analytical results from the monitoring wells are included in Appendix I.

The drive point wells in Lake Druid were sampled to characterize contamination in groundwater just below the lake's bottom. Drive point well data indicated VOCs at concentrations ranging from nondetect to 5,800 $\mu g/\ell$. The drive point well data were compared to the surface water/sediment samples taken at these same locations. The drive point results show a relationship between groundwater contamination below the lake bottom and the surface water/sediment sample data at the same location. This supports the conceptual model of the groundwater contamination contributing to the contamination in Lake Druid surface water and sediment.

Monitoring wells were installed within the wooded area for permanent long-term monitoring of the aquifer at different depth intervals. Comparing monitoring well data with adjacent DPT sampling points at consistent depth intervals indicates a statistically good comparison, even though the wells were screened over a larger area and subject to greater volatilization. As an example, this can be illustrated by comparing data from DPT sample location U4Q001 at consistent depths with monitoring wells OLD-13-09A and OLD-13-11C. The shallow portion of U4Q001 indicates results for VOCs as high as 990 $\mu g/\ell$ compared to the shallow well (OLD-13-09A) VOCs of 930 $\mu g/\ell$. The comparison also indicates the presence of the same VOC constituents. No comparison can be generated for the intermediate wells because they are screened within the dense layer and there were no DPT samples collected from this interval.

The monitoring wells were also sampled for engineering treatability parameters (ETPs). Included in these data are inorganic parameters. The inorganic data indicate that aluminum, iron, and manganese are above FDEP guidance concentrations. These data are also included in Appendix I and will be analyzed more closely during the technology selection and design phase of the project.

5.0 REFINEMENT OF CONCEPTUAL MODEL AND RECOMMENDATIONS

5.1 REFINED SITE CONCEPTUAL MODEL. The SCM has been refined based on results from the IRA Focused Field Investigation. The initial SCM considered two scenarios for contaminant source release and two potential release pathways for contaminant migration. The contaminant source release scenarios included the following:

1. operational spills either on the ground surface outside the building or in the drain system, and/or

2. seepage from the settling tank located to the west of the facility.

As directed by the Navy and the OPT, the field investigation did not focus heavily on the source release mechanism, but rather on the potential release pathways. Therefore, one or both scenarios for source release may still hold true.

The pathways initially considered were the following:

1. the transport of the chlorinated solvents by stormwater runoff into the swale and culvert, from which they are directed to the lake; and

2. seepage of chlorinated solvents through the soil and into the groundwater, thereby affected by groundwater flow and migrating to the lake.

The results of the IRA Focused Field Investigation were sufficient to determine the pathway for contaminant migration. By taking the results of the hydrogeologic and Lake Druid investigations and analyzing them as one, the pathway for contaminant migration is determined to be chlorinated solvents seeping into the groundwater and migrating via groundwater flow into Lake Druid. Key components of the investigation that confirm this are as follows:

1. the drive point wells off the lakeshore and in the creek indicating an upward vertical gradient;

2. groundwater contaminated with PCE, TCE, and DCE from the suspected source area down to the lakeshore, based on initial site screening and the IRA focused investigation; and

3. the surface water and sediment contaminant plume configuration and contaminant concentrations mirror that of the groundwater contaminant plume.

A revised SCM is shown as Figure 5-1. Refinement of the SCM will continue through the overall Remedial Investigation and Feasibility Study stage of the project.

5.2 RECOMMENDATIONS. The investigative results indicate that the surficial aquifer between Lake Druid and Building 1100, in line with the creek, is likely contributing to the majority of contamination in Lake Druid. The highest VOC concentrations are confined to a zone approximately 200 feet wide and 35 feet deep.

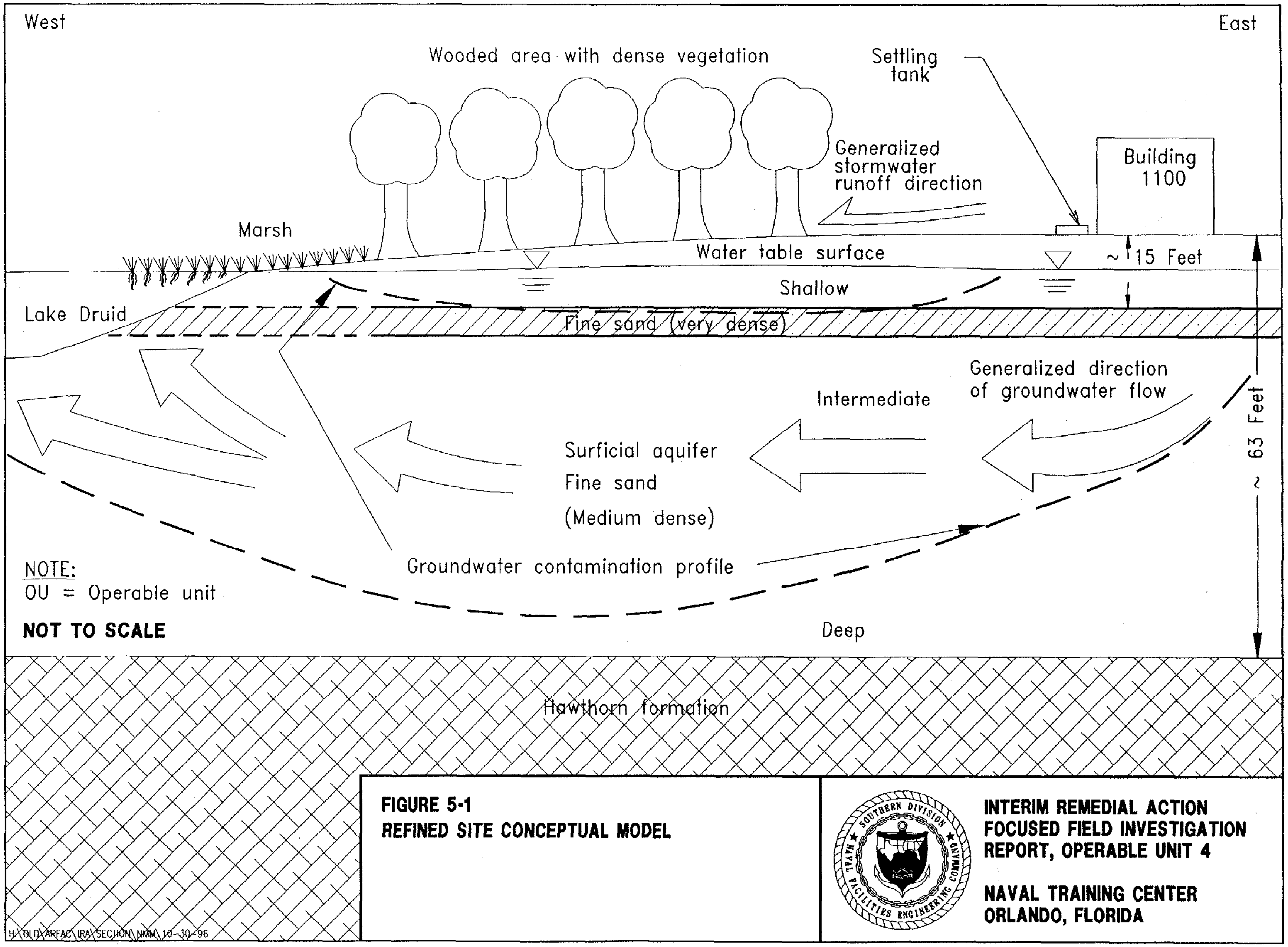


FIGURE 5-1
REFINED SITE CONCEPTUAL MODEL

INTERIM REMEDIAL ACTION FOCUSED FIELD INVESTIGATION REPORT, OPERABLE UNIT 4

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Mitigating the VOCs in Lake Druid surface water will likely require control of the groundwater plume discharging to the lake. A focused feasibility study will be performed to consider remedial technologies suitable for the interim action. Once the VOCs discharging to the lake are controlled, VOC concentrations in the surface water and sediment should decrease, either through volatilization, continued biological degradation, or both.

REFERENCES

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APPENDIX A

AREA C PRELIMINARY RISK EVALUATION

AREA C PRELIMINARY
RISK EVALUATION

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Barbara Nwokike, Code 1873, Engineer-in-Charge

April 1996

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: April 30, 1996

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Salvetti, P.E.
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at its facilities.

One of these programs is the Base Realignment and Closure (BRAC) cleanup program. This program complies with the BRAC Act of 1988 (Public Law (P.L.) 100-526, 102 Statute 2623) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510, 104 Statute 1808), which require the DOD to observe pertinent environmental legal provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the 1992 Community Environmental Response Facilitation Act; Executive Order 12580; and the statutory provisions of the Defense Environmental Restoration Program, the National Environmental Policy Act (NEPA), and any other applicable statutes that protect natural and cultural resources.

CERCLA requirements, in conjunction with corrective action requirements under Subtitle C of the Resource Conservation and Recovery Act (RCRA), govern most environmental restoration activities. Requirements under Subtitles C, D, and I, of RCRA, as well as the Toxic Substances Control Act, the Clean Water Act, the Clean Air Act, the Safe Drinking Water Act, and other statutes, govern most environmental missions or operational-related and closure-related compliance activities. These compliance laws may also be applicable or relevant and appropriate requirements for selecting and implementing remedial actions under CERCLA. NEPA requirements govern the Environmental Impact Analysis and Environmental Impact Statement preparation for the disposal and reuse of BRAC installations.

The BRAC program centers on a single goal: expediting and improving environmental response actions to facilitate the disposal and reuse of a BRAC installation, while protecting human health and the environment.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM); the U.S. Environmental Protection Agency; and the Florida Department of Environmental Protection collectively coordinate the cleanup activities through the BRAC cleanup team. This team approach is intended to foster partnering, accelerate the environmental cleanup process and expedite timely, cost-effective, and environmentally responsible disposal and reuse decisions.

Questions regarding the BRAC program at Naval Training Center, Orlando should be addressed to the SOUTHNAVFACENGCOM BRAC Environmental Coordinator, Mr. Wayne Hansel, Code 18B7, at (407) 646-5294 or SOUTHNAVFACENGCOM Engineer-in-Charge (EIC), Ms. Barbara Nwokike, Code 1873, at (803) 820-5566.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), under contract to the Southern Division, Naval Facilities Engineering Command, in accordance with Base Realignment and Closure (BRAC) 1993, has prepared this Preliminary Risk Evaluation (PRE) to characterize the potential risks to human health and the environment from environmental contamination associated with Area C at Naval Training Center (NTC), Orlando, Florida. The PREs are screening-level evaluations of potential risks that environmental contaminants associated with Area C may pose to human and ecological receptors. The PREs were performed to determine whether or not environmental contamination at Area C will require any future action, including but not limited to, additional site evaluations, a baseline risk assessment, remedial measures, or no further action.

The human health and ecological PREs were conducted in accordance with methodology provided in the U.S. Environmental Protection Agency (USEPA) Region IV Memorandum "Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)" (USEPA, 1994a), and minutes of meetings with the USEPA and Florida Department of Environmental Protection (FDEP) concerning PREs (ABB-ES, 1995c). This methodology is designed to result in a conservative evaluation that does not overlook or dismiss potentially substantial risks. The PRE is most useful in determining risks that are not significant, rather than determining the specific nature and magnitude of risks associated with the site.

In accordance with this methodology, the public health PRE was conducted by comparing maximum detected analyte concentrations in groundwater, surface water, sediment, surface soil, subsurface soil, and estimated indoor air concentrations of volatile organic compounds (VOCs), to regulatory criteria and readily available risk screening values based on potential exposures to residential populations. These evaluations were expressed as risk estimates and were compared to the USEPA target cancer risk range of $1\text{x}10^{-6}$ to $1\text{x}10^{-4}$ and the noncancer hazard index (HI) value of 1.

The results of the public health risk assessment indicate that, based on available information, potential residential exposures to groundwater used as source of drinking water may pose cancer and noncancer risks above USEPA acceptable risk levels, and maximum groundwater concentrations of chlorinated VOCs, arsenic, and beryllium exceed State and Federal regulatory criteria. In addition, under current land-use conditions, a potential may exist for VOC vapor migration from groundwater and subsurface soil to ambient air in aboveground residential structures. Potential cancer risks for residential inhalation exposures to estimated indoor VOC concentrations are within USEPA acceptable risk limits, but are above $1\text{x}10^{-6}$. Cancer and noncancer risk estimates for potential residential direct-contact exposures to surface soil and subsurface soil, and potential residential swimming exposures to surface water and sediment in Lake Druid, are within USEPA acceptable risk limits. However, cancer risk estimates for surface water are above $1\text{x}10^{-6}$, and maximum concentrations of arsenic, tetrachloroethylene, and beryllium in soils exceed State regulatory criteria.

The ecological PRE was conducted by comparing maximum detected analyte concentrations in surface water and sediment to State and Federal standards and maximum surface soil concentrations to soil screening values developed by ABB-ES.

Through these comparisons, analytes which were detected at maximum concentrations above the screening values were identified. The results of the ecological PRE suggest that it is unlikely that the populations of aquatic receptors occurring in Lake Druid, and terrestrial plant, invertebrate, and vertebrate receptors potentially exposed to Area C surface soils would be adversely affected by contamination associated with Area C.

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Orlando, Florida

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Naval Training Center
Orlando, Florida

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AWQC	Federal Ambient Water Quality Criteria
bls	below land surface
BRAC	Base Realignment and Closure
CF	conversion factor
cm	centimeter
DCE	dichloroethene
DRMO	Defense Reutilization Materials Office
EBS	Environmental Baseline Survey
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
FOSL	Finding of Suitability to Lease
GC	gas chromatograph
HI	hazard index
HQ	hazard quotient
ℓ/day	liters per day
MADEP	Massachusetts Department of Environmental Protection
MCL	maximum contaminant level
MEK	methyl-ethyl ketone
m^3	cubic meter
μg/kg	micrograms per kilogram
μg/ℓ	microgram per liter
mg/day	milligrams per day
mg/kg	milligram per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NTC	Naval Training Center
OPT	Orlando Partnering Team
PCE	Tetrachloroethene
PCL	Protective Contaminant Levels

PRE	preliminary risk evaluation
RBC	risk-based concentrations
SCG	soil cleanup goal
SQC	sediment quality criteria
SQGs	sediment quality guidelines
SWSV	surface water screening values
TCE	trichloroethene
TPH	total petroleum hydrocarbon
UCL	upper confidence limit
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

This document presents Public Health and Ecological Preliminary Risk Evaluations (PREs) for Area C at the Naval Training Center (NTC) in Orlando, Florida. Soil and groundwater contamination (primarily chlorinated solvents) was discovered during site screening activities at the former laundry (Study Area 13) and the adjacent Study Areas 12 and 14 (ABB Environmental Services, Inc. [ABB-ES], 1995a).

1.1 BACKGROUND AND CONDITIONS.

The following is a brief summary of Study Areas 12, 13, and 14. More detailed descriptions can be found in the Final Site Screening Plan, Groups I Through V Study Areas and Miscellaneous Sites (ABB-ES, 1995b).

1.1.1 Study Area 12 Study Area 12 includes the Defense Reutilization Materials Office (DRMO) warehouses and salvage yard (Building 1063), and the truck scales (Building 1069). These buildings are located on Port Hueneme Avenue, in the northcentral portion of Area C, south of the laundry (Study Area 13). The warehouse building was originally constructed in the early 1940s. Site use has reportedly remained consistent (i.e., salvage, scrap, and disposal yard) throughout its history. Based on review of aerial photographs, the original structure occupied approximately one-half the footprint of the current structure. The current warehouse is constructed of sheet-metal walls and roof (i.e., a Butler building) on concrete slab. This structure was added to, or replaced, the original warehouse in 1962. The asphalt paved salvage yard, located west of the warehouse, is occupied by rows of salvage scrap materials, concrete storage bins, and a drum storage area. There is also a transformer carcass storage area in the southwest corner of the study area. Salvage scrap items are also stored in this area, including desks, wheels, vehicles, transformers, and fencing. It is not known how long this area has been paved.

Historical records indicate this area was used to store small quantities (1 to 5 gallons) of hazardous waste between 1959 and 1985. These wastes were stored in the southwest corner of the salvage lot and included the following: paints, insecticides, asbestos, solvents including trichloroethene (TCE) and methyl-ethyl ketone, ammonium hydroxide, sodium sulfide, and mercury.

1.1.2 Study Area 13 Study Area 13 includes the NTC laundry facility (Building 1100) and the former location of a boiler house (Building 1101). Study Area 13 is located in the northwest corner of Area C at Port Hueneme Avenue and Davisville Street. Building 1101 was located east of Building 1100 and was demolished sometime after 1962.

Building 1100 was constructed in 1943, and is a single-story, wood-framed structure that had always been used as an industrial laundry and drycleaning facility, which served the entire military base. The surrounding property is paved asphalt, except for small areas east and west of the building that are landscaped and grass covered. The paved areas around the perimeter of the building include roads and parking lots. Prior to construction of the facility in 1943, the land was undeveloped. The laundry was closed in 1995.

Reportedly, hazardous wastes generated and materials used in the drycleaning process had been poorly managed. At the time of the environmental baseline survey

(ABB-ES, 1994), there were many containers in the building, ranging in volume from ½ to 55 gallons that were open and not labeled. The facility had received a Notice of Violation and a citation from the Florida Department of Environmental Protection (FDEP) for unlabeled and unmanifested waste.

Wastewater from the laundry machines discharged to the sanitary sewer through badly deteriorated drainage trenches in the floor. The floor trenches discharge to a single pipe that is connected to a settling-and-surge tank. Due to the volume of water discharged in this area, a 30,000-gallon surge tank was installed in the mid-1960s. Sludge was removed from this tank annually and disposed of through the DRMO. Waste filters from the drycleaning machines were also generated at the facility. Tetrachloroethene (PCE) was separated from the water and filters by heating the assemblies in a pressure cooker. The filters were disposed of through the DRMO, and the solvent was recycled. In the past, the filters were allegedly disposed of in the North Grinder Landfill (ABB-ES, 1994).

Documented discharges of water contaminated with chlorinated solvents have occurred on the property. Discharges of water from the washing machines to Lake Druid have also been documented.

<u>1.1.3 Study Area 14</u> Study Area 14 includes Building 1102 and the surrounding paved and grassed areas. The facility is located off Marvin Shields Avenue in the northwest portion of Area C, west of the laundry (Study Area 13). The facilities are used for indoor and outdoor storage of salvageable equipment and materials, in support of DRMO operations. The facility includes a rectangular, one-story, corrugated-steel building constructed on a concrete slab with a gabled roof. The surrounding salvage yard is currently asphalt paved. The building was originally constructed in 1969. Prior to that time, the area between the base laundry (to the northwest) and the current structure was used as a scrap and salvage yard. Equipment and materials currently stored at this location include office furniture, mattresses, refrigerators, and drycleaning equipment.

There is documentation of a release of three gallons of PCE from scrap drycleaning equipment in 1989. Remediation included the removal and disposal of approximately 20 drums of contaminated soil and asphalt. However, the exact location of the release was not indicated (ABB-ES, 1994).

<u>1.2 INVESTIGATION SUMMARY</u>. The site-screening investigation conducted at Area C included a soil-gas survey, surface and subsurface soil sampling, and the installation of 16 monitoring wells to evaluate groundwater. Twelve wells were installed to evaluate the shallow surficial aquifer (approximately 15 to 20 feet below land surface [bls]). Four wells in the immediate vicinity of the laundry were screened at the base of the surficial aquifer, approximately 60 feet bls. Saturated soil samples were collected approximately every 6 feet from the interval between the shallow and deep wells and analyzed on a field gas chromatograph (GC). Combined with the groundwater samples collected from the monitoring wells, these data contributed to the evaluation of the surficial aquifer.

The results of the site screening investigation are provided in detail in the Draft Site Screening Report for Groups I and II (ABB-ES, 1995a). Volatile organic detections are summarized on Figure 1-1. PCE and TCE were detected above the Florida Maximum Contaminant Level (MCL) of 3 micrograms per liter ($\mu g/\ell$) in several shallow monitoring wells. The highest concentrations of each compound were detected in shallow monitoring well OLD-13-07A, located west of the laundry. PCE and TCE were also detected in the deep well OLD-13-08C, but at concentrations below the MCL. Field GC data for soils collected in this vicinity detected PCE and TCE in soil approximately 18 feet bls at concentrations of 3,700 micrograms per kilogram (μg/kg) and 1,300 μg/kg, respectively.

Lake Druid was not included in the original site screening investigation. After reviewing the site-screening data, the Orlando Partnering Team (OPT) requested that surface water and sediment samples be collected from the lake.

On November 29, 1995, surface water and sediment samples were collected along the shoreline of Lake Druid. These samples were analyzed by an offsite laboratory by U.S. Environmental Protection Agency (USEPA) Method 8010. These results are also summarized on Figure 1-1. PCE, TCE, cis-1,2-dichloroethene (cis-DCE), 1,1-DCE, and vinyl chloride were detected at these locations. At some locations, TCE and cis-DCE were detected in surface water at concentrations greater than had been detected in groundwater collected from the monitoring wells. Vinyl chloride and 1,1-DCE had not been detected in groundwater.

On December 11, 1995, additional surface water and sediment samples were collected in Lake Druid approximately 50 west of the locations shown on Figure 1-1. The water depth was approximately 4 feet. Cis-DCE was detected in surface water collected from each deeper location. TCE was also detected in surface water opposite sample location 13D/W00201. TCE and PCE were detected in sediment from this deeper location, and from the location 50 feet west of sample 13W/D00301. Chlorinated solvent concentrations from the locations farther out in the lake were generally much lower than at the shoreline, sometimes by two orders of magnitude.

The PRE for Area C was conducted using the data outlined above.

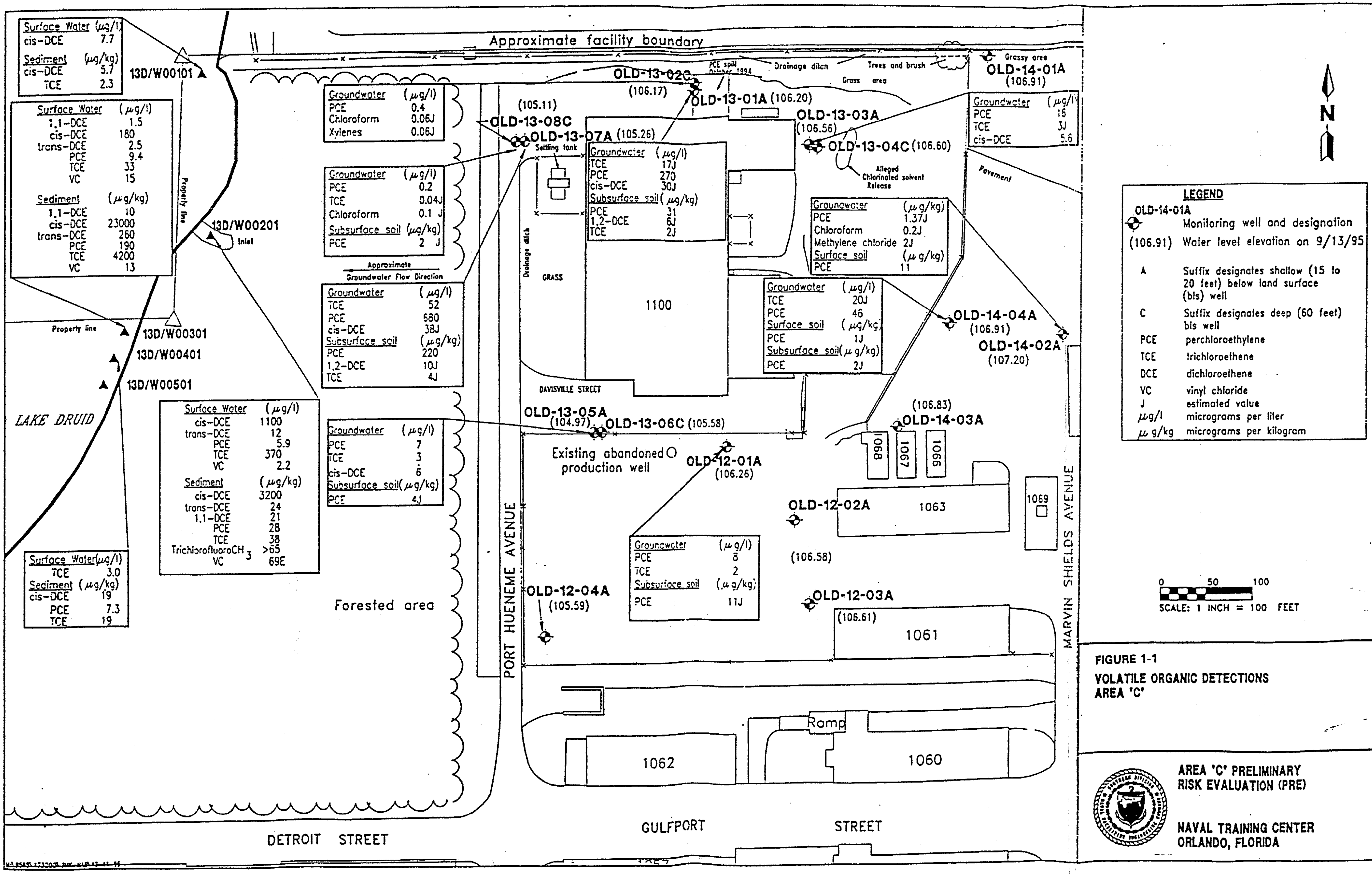

FIGURE 1-1
VOLATILE ORGANIC DETECTIONS
AREA 'C'

AREA 'C' PRELIMINARY RISK EVALUATION (PRE)

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

00444606Z

2.0 PRELIMINARY RISK EVALUATION

The PREs are screening-level evaluations of potential risks that environmental analytes may pose to human and ecological receptors. The results of the PREs are used in conjunction with other information gathered during site screening to focus future site activities.

The specific objectives of the PRE are to:

- review the existing analytical data collected for surface soil, subsurface soil, surface water, sediment, and groundwater;
- characterize the current and potential future land uses and ecological status of each site to identify potential human and ecological receptors and contaminant exposure pathways;
- compare the analytical data to available human health and ecological screening guidelines and criteria to identify chemicals that may be associated with risks of concern;
- identify data gaps and make recommendations for future actions.

Specifically, the PREs at NTC, Orlando, Area C were conducted to aid in determining whether or not additional remedial investigations are needed at this site.
This chapter provides a brief summary of the methodology used to conduct the Public Health and Ecological PREs (Section 2.1), results of the Public Health and Ecological PREs (Section 2.2), and conclusions of the PREs (Section 2.3).

2.1 PRELIMINARY RISK EVALUATION METHODOLOGY. The human health and ecological PREs are generally consistent with methodology provided in the USEPA Region IV memorandum "Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)" (USEPA, 1994a), and minutes of meetings with USEPA and FDEP concerning PREs (ABB-ES, 1995c).

In summary, the PREs provide an evaluation of the primary exposure pathways that might be expected to contribute substantially to potential human and ecological risks associated with exposures to analytes in various media at the site. The PREs are conducted by comparing maximum detected analyte concentrations with background concentrations and readily available risk screening values. This methodology is designed to result in a conservative evaluation that does not overlook or dismiss potentially substantial risks. The PRE is most useful in determining risks that are not significant, rather than determining the nature and magnitude of risks associated with the site.

The technical approaches used for the public health and ecological PREs are described below in Subsections 2.1.1 and 2.1.2, respectively.

2.1.1 Public Health PRE The public health PRE is conducted by comparing maximum detected analyte concentrations in groundwater, surface water, sediment, surface soil (soil collected 0-2 feet bls), and subsurface soil (soil collected 2 to 10 feet bls), in addition to estimated indoor air concentrations of volatile organic compounds (VOCs), with readily available screening values including the following:

- risk-based concentrations (RBCs) published by USEPA Region III (USEPA, 1995a) (all media except surface water)
- Federal MCLs (USEPA, 1995b) (groundwater only)
- FDEP guidance concentrations (FDEP, 1994) (groundwater only)
- FDEP soil cleanup goals for military sites (FDEP, 1995) (soils only).
- surface water screening values (SWSVs) developed by ABB-ES (Appendix B)

Comparisons to RBCs and SWSVs are expressed through a risk ratio. For analytes with maximum concentrations above the background concentration, risk-ratios are calculated by dividing the maximum detected analyte concentration by the RBC or SWSV. Separate risk ratios are calculated for carcinogenic and noncarcinogenic effects. Summary risk ratios for carcinogenic and noncarcinogenic effects are then calculated by summing the cancer risk ratios for all carcinogenic analytes, and the noncancer risk ratios for noncarcinogenic analytes, respectively.

For groundwater, maximum detected groundwater concentrations are also compared directly to MCLs and FDEP criteria. Any analytes with maximum concentrations that exceed these values are identified. In addition, because the potential may exist for VOCs in groundwater and subsurface soil to volatilize and accumulate in structures located on the ground surface above, potential exposures to indoor air were estimated using a VOC migration model (Farmer Model) (Appendix C). The estimated indoor air concentrations were then compared with RBCs for ambient air. Risk ratios are not calculated for the comparison to regulatory criteria.

USEPA Region III RBCs are based on toxicity constants and standard exposure scenarios and correspond to fixed levels of risk. For noncarcinogenic chemicals, the RBC is based on a hazard quotient (HQ) of 1. For carcinogenic chemicals the RBC is based on a lifetime cancer risk of $1x10^{-6}$. The standard exposure scenarios (residential and industrial) for which RBCs have been developed include the inhalation of ambient air and the ingestion of tapwater, fish tissue, and soil. For groundwater at Area C, RBCs for tapwater are used for risk screening of potential direct contact exposures. Indirect exposures to groundwater VOCs, which may volatilize to aboveground structures, are evaluated with RBCs for ambient air. For surface soils, subsurface soils, and sediments, RBCs for residential soil are used. RBCs for tapwater exposures are calculated assuming that children (age 1-6 years) and adults ingest 1 liter or 2 liters per day (L/day) of groundwater that has been used as drinking water, respectively, 350 days per year for a combined total of 30 years. RBCs for ambient air use the same exposure parameters for tapwater exposure, substituting inhalation rates of 12 cubic meters (m^3) (child) and 20 m^3 per day (adult) for water ingestion rates. RBCs for residential soil exposures are calculated assuming that children (age 1-6 years) and adults ingest 200 or 100 milligrams per day of soil, respectively, 350 days per year for a combined total of 30 years. Dermal and inhalation exposures are not considered in the calculation of RBCs.

For noncarcinogenic analytes, a risk-ratio above 1 indicates that the maximum detected analyte concentration exceeds the RBC and, therefore, exceeds a HQ of

1. A noncancer summary risk ratio above 1 indicates that additive exposures to the maximum detected concentrations of all noncarcinogenic analytes exceed a hazard index (HI) of 1. An HI less than 1 indicates that noncarcinogenic toxic effects are unlikely. HIs greater than 1 indicate non-carcinogenic risk associated with potential exposures may be of concern. As the HI increases, so does the likelihood that adverse effects might be associated with exposure. However, HI values greater than 1 should be interpreted with caution, since the toxicities of all analytes are not necessarily additive. The acceptable risk level for noncarcinogenic effects is generally an HI of 1 or less (USEPA, 1989), although values greater than 1 may also be acceptable.

For carcinogenic analytes, a risk ratio above 1 indicates that the maximum detected analyte concentration exceeds the RBC and, therefore, potential exposures may be associated with excess lifetime cancer risk greater than $1x10^{-6}$. A cancer summary risk ratio above 1 indicates that additive exposures to the maximum detected concentrations of all carcinogenic analytes may be associated with an excess lifetime cancer risk (ELCR) greater than $1x10^{-6}$. The USEPA guidelines, established in the National Oil and Hazardous Substances Contingency Plan (NCP), indicate that the allowable total lifetime cancer risk due to exposure to the analytes at a site, by each complete exposure pathway, is within a range of 1 in 1 million ($1x10^{-6}$) to 1 in 10,000 ($1x10^{-4}$) (USEPA, 1990). These criteria are generally based on exposure to a conservative estimate of the average concentrations of analytes.

Because Lake Druid surface water is not used as a source of drinking water, comparisons of surface water data with screening values developed for potential drinking water exposures are not appropriate. Therefore, surface water screening values based on potential swimming exposures were developed by ABB-ES to evaluate surface water data. Health-based SWSVs were developed using risk assessment methodology consistent with USEPA guidance. SWSVs were developed for a child (age 1-6) and adult resident that are assumed to be exposed to surface water through incidental ingestion and dermal contact for 2.6 hours per day, 45 days per year, for 30 years. Using the ratio method described below, SWSVs were calculated for the surface water concentrations associated with $1x10^{-6}$ excess lifetime cancer risk with an HI of 1. The risk assessment spreadsheets, including documentation of exposure parameters and presentation of SWSV calculations, are provided in Appendix B.

$$\frac{Surface\ water\ Risk}{Surface\ water\ Concentration} = \frac{Target\ Risk}{SWSV} \qquad (1)$$

where: Surface water risk is the ELCR or HI calculated in the risk spreadsheets (Appendix B), and
Target Risk is ELCR = $1x10^{-6}$ or HI = 1

For each analyte, the lower of the calculated screening concentrations for cancer or noncancer risk was selected as the final SWSV.

2.1.2 Ecological PRE The ecological PRE is conducted by comparing the maximum concentrations of analytes detected in surface water, sediment, and surface soil (soil collected 0-2 feet bls) with readily available screening values. Since ecological receptors are typically not exposed to subsurface soils (soils collected deeper than 2 feet), this medium is not evaluated in the ecological PRE. Likewise, ecological receptors do not have direct contact exposures to groundwater and, therefore, this medium is not evaluated.

The ecological PRE for surface water is conducted by comparing maximum detected concentrations of analytes in surface water with surface water screening values based on water quality criteria for the protection of aquatic organisms. The ecological PRE for sediment is conducted by comparing maximum detected concentrations of analytes in sediment with sediment screening values based on sediment quality criteria for the protection of aquatic organisms. The ecological PRE for surface soil is conducted by comparing the maximum detected concentrations of analytes in surface soil with surface soil screening values developed to protect terrestrial vertebrate receptors, plants, and invertebrates. For all media, analytes that are detected at maximum concentrations above the background concentrations and above the screening values are identified.

Surface water screening values include the following:

- Federal Ambient Water Quality Criteria (USEPA, 1986),
- USEPA Region IV Chronic Freshwater Quality Screening Values (USEPA, 1994b), and
- Florida Class III Fresh Water Standards (Florida Administrative Code, Chapter 62-302, 1995).

Sediment screening values include the following:

- Sediment Quality Criteria (SQC) for the protection of Benthic Organisms (USEPA, 1988)
- USEPA Region IV Sediment Screening Values for Hazardous Waste Sites (USEPA, 1994c)
- Florida Sediment Quality Guidelines (SQG) (MacDonald, 1994)
- Ontario Ministry of Environment SQG; lowest effect levels (Persaud et al., 1992).

The lesser of the surface water and sediment screening values provided by each of these sources are used as the aquatic screening values to evaluate surface water and sediment data at Area C.

USEPA Region IV does not specify a methodology for assessing surface soil exposures to ecological receptors (USEPA, 1994a), and no State or Federal standards or guidelines exist for surface soil exposure. Therefore, this exposure pathway is evaluated through comparison of maximum analyte concentrations in surface soil with Protective Contaminant Levels (PCLs) for terrestrial vertebrate receptors (calculated by ABB-ES), phytotoxicity benchmark values for plants (Hill and Suter, 1994; Hulzebos et al., 1993), and invertebrate toxicity benchmark values for terrestrial invertebrates (Neuhauser, 1985; and others). This method of evaluation has been reviewed by the U.S. Army, Massachusetts Department of Environmental Protection, regulators in USEPA Regions I and IV, and the FDEP.

The PCL value is calculated using a food-web model, which assumes that terrestrial vertebrate receptors could be exposed to analytes in surface soil through incidental surface soil ingestion and food-chain uptake (e.g., ingestion of plants and invertebrates exposed to the soil). PCLs are calculated for receptors that could potentially occur at Area C, including the short-tailed shrew, the white-footed mouse, and the American Robin. The lowest PCL value for these three receptors is selected as the screening value to evaluate surface soil data. This value is expected to be protective of the population of terrestrial vertebrate receptors that could potentially be exposed to the surface soil at Area C.

__2.2 PRELIMINARY RISK EVALUATION RESULTS__. The results of the human health PRE are presented in Appendix A, Tables A-1 through A-5, and discussed in Subsection 2.2.1. The results of the ecological PRE are presented in Appendix A, Tables A-5 through A-8, and discussed in Subsection 2.2.2.

__2.2.1 Human Health Preliminary Risk Evaluation__ This PRE identifies potential risks that may be associated with current and potential future exposures to groundwater associated with Area C, surface soil, and subsurface soil collected at Area C, and surface water and sediment collected at Lake Druid. Sample locations for these media are presented on Figure 1-1.

Although not part of Area C, a small area of Lake Druid adjacent to Area C was sampled (Figure 1-1). Data collected during the site investigation suggest that groundwater associated with Area C may be discharging to Lake Druid, located approximately 300 feet downgradient of the site. Analytical data for surface water and sediment samples collected in the vicinity of the potential groundwater discharge area substantiate site-screening results. Therefore, surface water and sediment samples collected in this portion of Lake Druid are included in the PRE.

Under current land use, there are no direct contact exposures to surface soil and subsurface soil, since samples were collected from beneath a paved area and there are no excavation activities presently occurring which could result in potential exposures. Groundwater associated with Area C is not used as a source of residential or industrial water and, therefore, there are no direct contact exposures. However, because the depth to groundwater is relatively shallow (i.e., approximately 6 feet), there may be potential for volatile contaminants in the groundwater to volatilize into aboveground structures; exposures to contaminated air could potentially occur. As discussed above, surface water is not used as a source of drinking water. Swimming is unlikely in the area of Lake Druid that was sampled because the area abuts U.S. Navy property, is not readily accessible to residents living on the lake, and does not present an attractive place for swimming (e.g., the area appeared "stagnant" and filled with aquatic vegetation). However, to provide a conservative evaluation of risks associated with potential exposures to surface water and sediment, swimming exposures were evaluated.

Under future land use, it is assumed that groundwater associated with this site could be used as a source of residential drinking water; exposures could occur through ingestion, dermal contact, and inhalation of volatiles. If the pavement was removed, surface soils could be made accessible for direct contact exposures (i.e., incidental ingestion, dermal contact, and inhalation of dust and vapors). If construction activities were to take place, subsurface soils could be relocated to the surface; direct contact exposures could occur through incidental ingestion, dermal uptake, and inhalation of vapors and dust.

Groundwater. Appendix A, Table A-1 presents the results of the human health PRE for groundwater. The summary cancer risk ratio is 1,300. This indicates that additive potential exposures to the maximum detected concentrations of carcinogenic analytes in groundwater might be associated with an excess lifetime cancer risk as high as $1x10^{-3}$ (1 in 1,000). The analytes contributing the largest percentage to the cancer risk ratio include tetrachloroethylene and arsenic. Risk ratios for these analytes are 620 and 610, respectively, which correspond to estimated cancer risks of $6x10^{-4}$ for each analyte. The maximum detected concentrations of trichloroethene and beryllium also exceed RBCs by factors of more than 10, corresponding to estimated cancer risks between $1x10^{-5}$ and $1x10^{-4}$. Maximum detected concentrations of tetrachloroethylene, trichloroethene, and bis(2-ethylhexyl)phthalate also exceed Federal MCLs and FDEP guidance concentrations.

The summary noncancer risk ratio for groundwater is 5.6 (Appendix A, Table A-1). The individual risk ratios contributed by arsenic (2.5) and antimony (1.2) account for approximately one-half of the summary noncancer risk ratio. The maximum detected concentration of antimony exceeds the MCL and the FDEP guidance concentration. The maximum detected concentrations of aluminum and iron exceed secondary MCLs, which are promulgated for aesthetic or economic reasons (not health-based), and FDEP guidance concentrations. The maximum detected concentration of sodium exceeds the Federal health advisory and the FDEP guidance concentration.

The PRE for potential exposures to estimated indoor air VOC concentrations is presented in Appendix C. Of the three VOCs detected in well OLD-13-01A (which is the well adjacent to the abutting residential property), estimated indoor air concentrations of two VOCs (tetrachloroethylene and trichloroethene) exceed RBCs for ambient air. The summary cancer risk ratio is 66, with ratios for tetrachloroethylene and trichloroethene of 58 and 8.3, respectively. These ratios correspond to estimated cancer risks of $6x10^{-5}$ and $8x10^{-6}$, respectively. The summary noncancer risk ratio is less than 1.

Surface Water. Appendix A, Table A-2 presents the public health PRE for surface water. The summary cancer risk ratio is 28. This indicates that additive potential exposures to the maximum detected concentrations of carcinogenic analytes in surface water might be associated with an excess lifetime cancer risk as high as $3x10^{-5}$ (3 in 10,000). The analyte contributing the largest percentage to the cancer risk ratio is vinyl chloride. The risk ratio for this analyte is 19, which corresponds to estimated cancer risks of $2x10^{-5}$.

The summary noncancer risk ratio for surface water is 0.3 (Appendix A, Table A-2). The majority of this risk is contributed by cis-1,2-dichloroethene, which was detected at a maximum concentration of 1,100 $\mu g/\ell$.

Sediment. Appendix A, Table A-3 presents the public health PRE for sediment. The summary cancer risk ratio is 0.31. This indicates that additive potential exposures to the maximum detected concentrations of carcinogenic analytes in sediment might be associated with an excess lifetime cancer risk as high as $3x10^{-7}$. The analyte contributing the largest percentage to the cancer risk ratio is vinyl chloride, with a cancer risk ratio of 0.2 (corresponding to an estimated cancer risk of $2x10^{-7}$).

The summary noncancer risk ratio for sediment is 0.03 (Appendix A, Table A-3). The majority of this risk is contributed by cis-1,2-dichloroethene, which was detected at a maximum concentration of 23,000 mg/kg.

Surface Soil. Appendix A, Table A-4 presents the public health PRE for surface soil. The summary cancer risk ratio is 1.4. This indicates that additive potential exposures to the maximum detected concentrations of carcinogenic analytes in surface soil may be associated with excess lifetime cancer risk as high as $1x10^{-6}$. No analytes are associated with individual cancer risk ratios above 1. Only arsenic was detected at a maximum concentration above the Florida Soil Cleanup Goals (SCGs). However, the maximum detected concentration is below the background concentration.

The summary noncancer risk ratio for surface soil is 0.38 (Appendix A, Table A-2). The maximum detected concentration of arsenic exceeds the SCG, but is below the background concentration.

Subsurface Soil. Appendix A, Table A-5 presents the results of the human health PRE for subsurface soil. The summary cancer risk ratio is 11. This indicates that additive potential exposures to the maximum detected concentrations of carcinogenic analytes in subsurface soil may be associated with excess lifetime cancer risk as high as $1x10^{-5}$. The analytes contributing the largest percentage to the cancer risk ratio include arsenic, beryllium, and Aroclor-1260. Risk ratios for these analytes are 6, 3.3, and 1.3, respectively, which correspond to estimated cancer risks between $1x10^{-6}$ and $1x10^{-5}$ for each analyte. The maximum detected concentration of tetrachloroethylene exceeds the leaching SCG.

The summary noncancer risk ratio for subsurface soil is 2.3 (Appendix A, Table A-3). The individual risk ratio contributed by total petroleum hydrocarbons (TPH) (1.6) accounts for the majority of the summary noncancer risk ratio. The screening value for TPH is not an RBC, but rather a risk-based screening value developed by ABB-ES for potential exposures to gasoline in soil. Since volatile compounds typically associated with gasoline, which are more toxic than heavier petroleum compounds, were not detected in the subsurface soil at this site, this screening value is conservative for this site.

There are several sources of uncertainty associated with the human health PRE that should be kept in mind when interpreting the results. Among those that may influence the results most substantially are described below.

- No evaluation of potential groundwater direct-contact inhalation exposures: Tapwater RBCs account for ingestion intakes only, and do not address additional exposures that may occur to VOCs through inhalation and dermal contact during bathing or dishwashing activities. Although ingestion exposures often represent a greater percentage of the total exposure, not evaluating potential inhalation exposures from groundwater results in underestimation of potential risk for volatile compounds.

- Estimated indoor-air concentrations: Indoor-air concentrations were estimated to provide a preliminary evaluation of the potential exposures that might occur if VOCs in groundwater and subsurface soil migrated as vapor and accumulated in overlying structures, specifically the residences adjacent to Area C. For this reason, groundwater VOC concentrations detected in well OLD-13-01A were used to estimate potential indoor air concentrations. This well was selected to represent groundwater concentrations because it is located closest to the residences and, lacking more sufficient data, provides the best estimate of potential concentrations associated with this exposure pathway. However, it is unknown whether or not VOC contamination is present under the residential area. This, in addition to several other variables such as potential VOC concentration in groundwater, depth to groundwater, soil moisture and porosity, and building construction details, lends considerable uncertainty to this evaluation.

- Potential exposures to surface water and sediment in Lake Druid: Exposures to Lake Druid surface water were evaluated for potential swimming activities by a resident living on the lake. Evaluation of this exposure scenario represents a conservative approach because it is based on activities that would result in a reasonable maximum exposure to surface water. Potential exposures to surface water from fishing and boating activities would be considerably lower, as VOCs do not substantially accumulate in fish tissue, and inhalation exposures to VOCs in surface water and sediment would be lower than surface water ingestion and dermal contact exposures. However, risks for these potential exposures would be additive to risks for swimming exposures.

- Evaluation of the maximum detected analyte concentration: Developing summary risk estimates using maximum detected analyte concentrations provides a conservative evaluation, as it is unlikely that a receptor would be simultaneously exposed to all sample locations associated with maximum detected concentrations. Evaluation of the average concentration or 95^{th} percent upper confidence limit (UCL) on the arithmetic mean concentration results in lower and more realistic risk estimates.

- No evaluation of potential noncancer risks from exposures to carcinogenic analytes: With the exception of arsenic, published RBCs are based on either a noncancer or cancer endpoint, depending upon which basis results in a lower (more protective) RBC; chemicals with RBCs based on a cancer endpoint are not included in the noncancer risk evaluation. Because all chemicals have an inherent noncancer (systemic) toxicity, excluding carcinogenic chemicals from the noncancer risk evaluation results in an underestimation of potential noncancer risk.

- Relative contribution of background to the risk estimate: For some inorganic analytes such as arsenic and beryllium, background concentrations exceed RBCs. The background groundwater arsenic concentration, for example, contributes approximately 18 percent of the estimated risk. This suggests that estimated risks for these analytes are not entirely attributable to site-related contamination.

2.2.2 Ecological Preliminary Risk Evaluation This PRE identifies potential risks that may be associated with exposures to surface soils collected at Area C and surface water and sediment collected at Lake Druid. Sample locations for these media are presented on Figure 1-1.

Data collected during the site investigation suggest that groundwater associated with Area C may be discharging to Lake Druid, located approximately 300 feet downgradient of the site. Analytical data for surface water and sediment samples collected in the vicinity of a potential discharge area substantiate site-screening results (Figure 1-1). Therefore, although the portion of Lake Druid adjacent to Area C is not considered part of Area C, it is included in this PRE to determine if contamination potentially associated with Area C poses a risk to aquatic receptors.

Surface soils were collected from an area that is presently covered by pavement. Therefore, terrestrial vertebrate, plant, and invertebrate receptors are not currently exposed to surface soils at Area C. The surface soil risk evaluation provides an estimate of potential risks that may be present if the pavement in this area was to be removed in the future, allowing for direct contact with the soils.

Surface Water. Appendix A, Table A-6 presents the results of the ecological PRE for surface water. Of the six chlorinated VOCs detected in surface water, only the maximum detected concentration of trichloroethene exceeds the surface water screening value. Maximum concentrations of four other VOCs do not exceed screening values, and a screening value is not available for vinyl chloride.

Sediment. Appendix A, Table A-7 presents the results of the ecological PRE for sediment. No screening values are available for any of the six chlorinated VOCs detected in sediment. Therefore, data reported for sediment cannot be directly evaluated. A method of indirectly evaluating potential sediment impacts is discussed below.

The presumed source of the VOCs in surface water and sediment is groundwater, which discharges through the sediments and into the surface water of the lake. As groundwater discharges, some amount of each contaminant may sorb to sediment particulates, while the rest remains free in the pores between sediment particulates (i.e., the sediment porewater). The fraction of contaminant within the sediment porewater is generally considered to be more bioavailable than the fraction that is sorbed to sediments (USEPA, 1988). If it is assumed that all of the contaminants in groundwater are contained within the porewater (i.e., that none are sorbed to the sediment particulates), then groundwater concentrations may be representative of sediment porewater concentrations. Comparing these estimated sediment porewater concentrations to screening criteria provides an estimate of potential risks to aquatic organisms in sediments at the point of groundwater discharge.

A comparison of maximum groundwater concentrations (presented previously in Appendix A, Table A-1) with surface water screening values (presented in Appendix A, Table A-6) indicates that of the three VOCs detected in both groundwater and sediment (cis-1,2-dichloroethene, tetrachloroethylene, and trichloroethene), only the maximum detected groundwater concentration of tetrachloroethylene (680 μg/L) exceeds the surface water screening value (84 μg/L). However, this evaluation does not consider potential exposures to porewater concentrations of 1,1-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride. These VOCs, which may result from chlorinated ethene degradation, were detected in sediment but not in groundwater and, therefore, the potential porewater concentrations are unknown.

Surface Soil. Appendix A, Table A-8 presents the results of the ecological PRE for surface soil. No organic analytes were detected at maximum concentrations above terrestrial PCL, plant, or invertebrate screening values. No inorganic analytes were detected at maximum concentrations above PCL values. Plant screening values are exceeded by the maximum detected concentrations of aluminum, chromium, and zinc. The maximum concentration of copper exceeds the invertebrate screening value.

The screening values for aluminum, copper, and zinc are exceeded by factors of less than two, whereas the chromium screening value is exceeded by a factor of four. However, plant screening values for aluminum and chromium are based on background soil concentrations because the published literature-based screening values are below the soil background concentrations for Area C. Plants that may occur in the vicinity of this site would not be adversely affected by background concentrations of these inorganic analytes. Although the concentrations at which phytotoxicity may occur are unknown, it is unlikely that plants would be adversely affected by exposures to concentrations slightly above background. Likewise, it is unlikely that plant and invertebrate exposures to zinc and copper concentrations, respectively, that are slightly above the screening values would adversely affect plants and invertebrates.

2.3 PRELIMINARY RISK EVALUATION CONCLUSIONS. Conclusions of the public health and ecological PREs are presented below.

- Under current land-use conditions, a potential may exist for VOC vapor migration from groundwater and subsurface soil to ambient air in above-ground residential structures. Potential cancer risks based on estimated indoor air concentrations for a theoretical structure located on the Area C boundary adjacent to the residential area are within the USEPA acceptable cancer risk limits, but are greater than $1x10^{-6}$. However, additional data are required to determine the nature and extent of potential groundwater and subsurface soil contamination in the vicinity of the residential property.

- Potential human receptor exposures to tetrachloroethylene, trichloroethene, arsenic, and beryllium in groundwater used as a residential source of water may pose cancer and noncancer risks above USEPA acceptable risk levels.

- Maximum detected concentrations of tetrachloroethylene, trichloroethene, and arsenic in groundwater, arsenic in surface soil, and tetrachloroethylene, arsenic, and beryllium in subsurface soil exceed Federal and State regulatory criteria.

- Based on available sampling and analytical data, potential exposures to VOC contamination in surface water and sediment from recreational swimming do not pose cancer and noncancer risks above USEPA acceptable risk levels. Cancer risks associated with potential surface water exposures are greater than $1x10^{-6}$. However, these risk estimates do not consider additive exposures from other surface water and sediment exposure pathways that could potentially exist.

- It is unlikely that the populations of terrestrial vertebrate, plant, and soil invertebrate receptors would be adversely impacted by potential future exposures to surface soils at Area C.

- It is unlikely that the populations of aquatic receptors occurring in Lake Druid would be adversely impacted by potential exposures to VOCs in surface water and sediment in the area of suspected discharge. However, potential risks associated with sediment exposures could only be qualitatively evaluated, and this represents an uncertainty.

- The human health and ecological PREs for surface water and sediment are limited. Surface water and sediment sampling in Lake Druid was confined to an area of suspected groundwater discharge, and samples were analyzed for chlorinated VOCs only. Risks were evaluated for the data available and, therefore, are representative of potential exposures to a limited number of analytes in a defined area of the lake. The potential presence of contamination in other areas of Lake Druid has not been well characterized. Although supplemental samples collected at locations approximately 50 feet further into the lake from the original sampling points contained substantially lower concentrations of chlorinated VOCs (i.e., less than 50 parts per billion), the characteristics of groundwater discharge into Lake Druid have not been fully established. Risks associated with other areas of potential groundwater discharge and other chemicals have not been evaluated.

- There are no human or ecological receptor direct contact exposures to groundwater and subsurface soil at Area C under current land-use conditions.

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APPENDIX A

PRELIMINARY RISK EVALUATION TABLES

TABLE A-1
Human Health Preliminary Risk Evaluation of Groundwater [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]	Federal MCL [6]	Maximum Exceeds Federal MCL ?	FDEP Guidance Concentration [7]	Maximum Exceeds Guid. Conc. ?
CARCINOGENIC EFFECTS										
VOLATILES (µg/L)										
Chloroform	3 / 18	0.2	ND	YES	0.15	1.3	100	NO	• 6	NO
Methylene chloride	1 / 18	2	ND	YES	4.1	0.49	5	NO	• 5	NO
Tetrachloroethylene	11 / 18	680	ND	YES	1.1	618	5	YES	• 3	YES
Trichloroethene	9 / 18	52	ND	YES	1.6	33	5	YES	• 3	YES
SEMIVOLATILES (µg/L)										
Bis(2-Ethylhexyl) phthalate	3 / 18	33	ND	YES	4.8	6.9	6	YES	• 6	YES
INORGANICS (µg/L)										
Arsenic	8 / 18	27.6	5	YES	0.045	613	50	NO	• 50	NO
Beryllium	7 / 18	1.1	ND	YES	0.016	69	4	NO	• 4	NO
				SUMMARY CANCER RISK RATIO:		1300				
NON-CARCINOGENIC EFFECTS										
VOLATILES (µg/L)										
1,2-Dichloroethene (cis)	5 / 18	38	ND	YES	61	0.62	70	NO	• 70	NO
Xylene (total)	1 / 18	0.06	ND	YES	12,000	0.0000050	10,000	NO	• 10000	NO
SEMIVOLATILES (µg/L)										
Dimethylphthalate	1 / 18	1	ND	YES	370,000	0.0000027	NA	NA	• 70000	NO
Phenol	1 / 18	1	ND	YES	22,000	0.000045	NA	NA	• 10	NO
INORGANICS (µg/L)										
Aluminum	15 / 18	17300	4067	YES	37,000	0.47	200	YES	• 200	YES
Antimony	4 / 18	17.6	4.1	YES	15	1.17	6	YES	• 6	YES
Arsenic	8 / 18	27.6	5	YES	11	2.51	50	NO	• 50	NO
Barium	18 / 18	145	31.4	YES	2,600	0.056	2,000	NO	• 2000	NO
Cadmium	1 / 18	3.2	5.6	NO	18	NE	5	NO	• 5	NO
Calcium	18 / 18	125000	36830	YES	1,055,398	0.12	NA	NA	NA	NA
Chromium	2 / 18	20.8	7.8	YES	180	0.12	100	NO	• 100	NO
Copper	1 / 18	47.9	5.4	YES	1,500	0.032	1,300	NO	• 1000	NO
Iron	18 / 18	2010	1227	YES	11,000	0.18	300	YES	• 300	YES
Lead	1 / 18	2.1	4	NO	15	NE	15	NO	• 15	NO
Magnesium	18 / 18	5030	4560	YES	118,807	0.042	NA	NA	NA	NA
Manganese	18 / 18	32 8	17	YES	180	0.18	50	NO	• 50	NO
Mercury	3 / 18	0.14	0.12	YES	11	0.013	2	NO	• 2	NO
Potassium	18 / 18	3730	5400	NO	297,016	NE	NA	NA	NA	NA
Selenium	3 / 18	5.5	9.7	NO	180	NE	50	NO	• 50	NO
Silver	2 / 18	3.6	ND	YES	180	0.020	100	NO	• 100	NO
Sodium	18 / 18	41600	18222	YES	396,022	0.11	20,000	YES	• 160000	NO
Vanadium	12 / 18	16.9	20.6	NO	260	NE	NA	NA	• 49	NO
Zinc	10 / 18	24.4	4	YES	11,000	0.002	5,000	NO	• 5000	NO
WATER QUALITY PARAMETERS (mg/L)										
Total Suspended Solids	2 / 8	108	ND	YES	NA	NA	NA	NA	NA	NA
				SUMMARY NON-CANCER RISK RATIO:		5.6				

TABLE A-1
Human Health Preliminary Risk Evaluation of Groundwater [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]	Federal MCL[6]	Maximum Exceeds Federal MCL ?	FDEP Guidance Concentration [7]	Maximum Exceeds Guid. Conc. ?

NOTES:

[1] Based on analytical data for the following sample identifiers: 12G00101 TO 12G00401, 13G00101 TO 13G00801 (duplicate at 13G00101), 14G00101 TO 14G00401, 1400G302 (duplicate at 14G00401)

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Values are from USEPA Region III RBC table, October 20, 1995 (USEPA, 1995).
RBCs are for tap water and are based on a hazard quotient of 1 or an excess lifetime cancer risk of 1 in 1 million.
Arsenic is evaluated as a carcinogen and a non-carcinogen.
Value for chromium based on chromium VI.
Values for essential nutrients (calcium, magnesium, potassium, and sodium) are based on Recomended Daily Allowances (RDAs), and are derived by ABB-ES.
RBC is not available for lead; value is the treatment technique action limit for lead in drinking water distribution systems identified in the Drinking Water Standards and Health Advisories (USEPA, 1995).
Value for mercury based on inorganic mercury.

[5] The risk ratio is equal to the maximum detected analyte concentration divided by the USEPA Region III RBC. Risk ratios are calculated for anlaytes with a maximum detected concentration greater than the background concentration.
A summary cancer risk ratio of 1 roughly corresponds to excess lifetime cancer risk of $1x10^{-6}$; a summary non-cancer risk ratio of 1 roughly corresponds to a hazard index of 1. These ratios tend to overestimate risks, since they are based on maximum detected concentrations.

[6] Federal MCL published in Drinking Water Regulations and Health Advisories, May 1995 (USEPA, 1995).
Current MCLs listed for bromodichloromethane and chloroform. 1994 Proposed rule for disinfectants and disinfection byproducts: total for all trihalomethanes combined cannot exceed 80 ppm.
Value for aluminum is a secondary MCL and represents the upper limit of the range (50 – 200 μg/L).
Value for copper is the treatment technique action level; the secondary MCL is 1000 μg/L.
Value for iron is a secondary MCL.
Value for lead is the action level triggering treatment techniques.
Value for manganese is a secondary MCL.
Value for silver is a secondary MCL and a lifetime health advisory.
Value for sodium is a health advisory guideline value.
Value for zinc is a lifetime health advisory; the secondary MCL is 5000 μg/L.

[7] Florida Department of Environmental Protection Groundwater Standards, June 1994.

[8] FDEP Primary Standard

[9] FDEP Guidance Concentration

NA = Not Available/Not Applicable
ND = Not Detected
NE = Not Evaluated

TABLE A-2

Human Health Preliminary Risk Evaluation of Surface Water [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	SWSV [4]	Risk Ratio [5]
CARCINOGENIC EFFECTS						
VOLATILES (µg/L)						
1,1-Dichloroethene	1 / 5	1.9	ND	YES	1.3	1.5
Tetrachloroethylene	2 / 5	9.4	ND	YES	4.7	2
Trichloroethene	3 / 5	370	ND	YES	64.9	5.70
Vinyl chloride	2 / 5	15	ND	YES	0.8	19
				SUMMARY CANCER RISK RATIO:		28
NON-CARCINOGENIC EFFECTS						
VOLATILES (µg/L)						
1,2-Dichloroethene (cis)	3 / 5	1100	ND	YES	3667	0.30
1,2-Dichloroethene (trans)	2 / 5	12	ND	YES	3750	0.0032
				SUMMARY NON-CANCER RISK RATIO:		0.30

NOTES:

[1] Based on analytical data from the following sampling locations: 13W/D00101 to 13W/D00501.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Values have been calculated by ABB-ES in accordance with USEPA Region IV risk assessment guidance, and are based on child and adult resident ingestion and demal contact exposures to surface water during swimming. Screening values are based on a target cancer risk of 1×10^{-6} or a target HI of 1, and were calculated using the following equality: [(Maximum surface water concentration) / (Total resident cancer risk (or child HI for non-cancer risk)] = [(Screening value) / (Target risk)] Screening values are presented in Table A-4.

[5] The *risk ratio* is equal to the *maximum detected analyte concentration* divided by the screening value. Risk ratios are calculated for anlaytes with a maximum detected concentration greater than the background concentration. A summary cancer risk ratio of 1 roughly corresponds to excess lifetime cancer risk of 1×10^{-6}; a summary non-cancer risk ratio of 1 roughly corresponds to a hazard index of 1. These ratios tend to overestimate risks, since they are based on maximum detected concentrations.

NA = Not Available/Not Applicable

ND = Not Detected

TABLE A-3
Human Health Preliminary Risk Evaluation of Sediment [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]
CARCINOGENIC EFFECTS						
VOLATILES (mg/Kg)						
1,1-Dichloroethene	2 / 5	0.021	ND	YES	1.1	0.019
Tetrachloroethylene	3 / 5	0.19	ND	YES	12	0.0158
Trichloroethene	4 / 5	4.2	ND	YES	58	0.07
Vinyl chloride	2 / 5	0.069	ND	YES	0.34	0.20
				SUMMARY CANCER RISK RATIO:		0.31
NON-CARCINOGENIC EFFECTS						
VOLATILES (mg/Kg)						
1,2-Dichloroethene (cis)	4 / 5	23	ND	YES	780	0.029
1,2-Dichloroethene (trans)	2 / 5	0.26	ND	YES	1600	0.00016
			SUMMARY NON-CANCER RISK RATIO:			0.030

NOTES:

[1] Based on analytical data from the following sampling locations: 13W/D00101 to 13W/D00501.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Values are from USEPA Region III RBC table, October 20, 1995 (USEPA, 1995).
RBCs are for residential soil and are based on a hazard quotient of 1 or an excess lifetime cancer risk of 1 in 1 million.

[5] The risk ratio is equal to the maximum detected analyte concentration divided by the USEPA Region III RBC. Risk ratios are calculated for anlaytes with a maximum detected concentration greater than the background concentration.
A summary cancer risk ratio of 1 roughly corresponds to excess lifetime cancer risk of 1×10^{-6}; a summary non-cancer risk ratio of 1 roughly corresponds to a hazard index of 1. These ratios tend to overestimate risks, since they are based on maximum detected concentrations.

NA = Not Available/Not Applicable
ND = Not Detected
NE = Not Evaluated

TABLE A-4
Human Health Preliminary Risk Evaluation of Surface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]	FDEP SCG [6]	Maximum Exceeds SCG ?
CARCINOGENIC EFFECTS								
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
Tetrachloroethylene	3 / 10	0.011	ND	YES	12	0.00092	[7] 0.03	NO
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)								
Benzo (a) anthracene	1 / 10	0.11	ND	YES	0.88	0.13	1.4	NO
Benzo (b) fluoranthene	1 / 10	0.22	ND	YES	0.88	0.25	1.4	NO
Benzo (k) fluoranthene	1 / 10	0.18	ND	YES	8.8	0.020	14	NO
Chrysene	1 / 10	0.2	ND	YES	88	0.0023	140	NO
Indeno (1,2,3-cd) pyrene	1 / 10	0.14	ND	YES	0.88	0.16	1.4	NO
PESTICIDES/PCBs (mg/kg)								
4,4'-DDE	2 / 10	0.0058	ND	YES	1.9	0.0031	3	NO
4,4'-DDT	3 / 10	0.017	ND	YES	1.9	0.0089	3.1	NO
Chlordane-alpha	1 / 10	0.0018	ND	YES	0.49	0.0037	0.8	NO
Chlordane-gamma	1 / 10	0.0016	ND	YES	0.49	0.0033	0.8	NO
INORGANICS (mg/kg)								
Arsenic	4 / 10	0.84	1	NO	0.43	NE	0.7	YES
Beryllium	2 / 10	0.13	0.09	YES	0.15	0.87	0.2	NO
			SUMMARY CANCER RISK RATIO:			1.4		
NON-CARCINOGENIC EFFECTS								
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
Acetone	2 / 10	0.042	ND	YES	7,800	0.0000054	260	NO
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)								
Benzo (g,h,i) perylene	1 / 10	0.18	ND	YES	2,300	0.000078	14	NO
Pyrene	1 / 10	0.23	ND	YES	2,300	0.00010	2200	NO
INORGANICS (mg/kg)								
Aluminum	10 / 10	2180	2088	YES	78,000	0.028	75000	NO
Arsenic	4 / 10	0.84	1	NO	23	NE	0.7	YES
Barium	10 / 10	5.8	8.7	NO	5,500	NE	5200	NO
Cadmium	1 / 10	1.7	0.98	YES	39	0.044	37	NO

Continued on next page.

TABLE A-4
Human Health Preliminary Risk Evaluation of Surface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]	FDEP SCG [6]	Maximum Exceeds SCG ?
Calcium	10 / 10	12400	25295	NO	1,000,000	NE	NA	NA
Chromium	9 / 10	16.4	4.6	YES	390	0.042	290	NO
Copper	3 / 10	30.2	4.1	YES	3,100	0.0097	NA	NA
Iron	8 / 10	660	712	NO	460,468	NE	NA	NA
Lead	8 / 10	40.9	14.5	YES	400	0.10	500	NO
Magnesium	10 / 10	175	328	NO	460,468	NE	NA	NA
Manganese	9 / 10	14.7	8.1	YES	390	0.038	370	NO
Mercury	1 / 10	0.07	0.07	NO	23	NE	23	NO
Nickel	3 / 10	9.2	4.4	YES	1,600	0.0058	1500	NO
Vanadium	6 / 10	2.5	3.1	NO	550	NE	490	NO
Zinc	6 / 10	52.9	17.2	YES	23,000	0.0023	23000	NO
TOTAL PETROLEUM HYDROCARBONS (mg/kg)								
Total Petroleum Hydrocarbons	8 / 10	40.2	ND	YES	380	0.11	NA	NA
			SUMMARY NON-CANCER RISK RATIO:			0.38		

NOTES:

[1] Based on analytical data for the following sample identifiers: 12B00101 to 12B00401 (duplicate at 12B00401), 14B00101 to 14B00401, and 13B00501.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Values are from USEPA Region III RBC table, October 20, 1995 (USEPA, 1995). RBCs are for residential soil and are based on a hazard quotient of 1 or an excess lifetime cancer risk of 1 in 1 million.
Value for benzo(g,h,i)perylene based on value for pyrene as a conservative surrogate.
Arsenic is evaluated as a carcinogen and a non-carcinogen.
Value for chromium based on hexavalent chromium.
RBC is not available for lead; value is from Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER Directive 9355.4-12).
Value for mercury is based on inorganic mercury.
Value for nickel based on nickel soluble salts.
RBC is not available for TPH. Values are screening values for gasoline derived by ABB-ES.

[5] The risk ratio is equal to the maximum detected analyte concentration divided by the USEPA Region III RBC. Risk ratios are calculated for anlaytes with a maximum detected concentration greater than the background concentration.
A summary cancer risk ratio of 1 roughly corresponds to excess lifetime cancer risk of $1x10^{-6}$; a summary non-cancer risk ratio of 1 roughly corresponds to a hazard index of 1. These ratios tend to overestimate risks, since they are based on maximum detected concentrations.

[6] Florida Department of Environmental Protection Soil Cleanup Goals for Military Sites in Florida (FDEP, September 29, 1995). Values presented are for Residential.
Value for chromium based on chromium VI.

[7] Value is the leaching-based value. This analyte was detected in groundwater at a maximum concentration above the FDEP Guidance Concentration.

NA = Not Available/Not Applicable

ND = Not Detected

NE = Not Ev[illegible]d. The maximum detected concentration is less than background.

TABLE A-5
Human Health Preliminary Risk Evaluation of Subsurface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [4]	Risk Ratio [5]	FDEP SCG [6]	Maximum Exceeds SCG?
CARCINOGENIC EFFECTS								
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
Tetrachloroethylene	4 / 17	0.031	ND	YES	12	0.0026	[7] 0.03	YES
Trichloroethene	1 / 17	0.002	ND	YES	58	0.000034	0.01	NO
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)								
Benzo (a) anthracene	2 / 17	0.11	ND	YES	0.88	0.13	1.4	NO
Benzo (b) fluoranthene	2 / 17	0.17	ND	YES	0.88	0.19	1.4	NO
Benzo (k) fluoranthene	1 / 17	0.13	ND	YES	8.8	0.015	14	NO
Chrysene	3 / 17	0.16	ND	YES	88	0.0018	140	NO
PESTICIDES/PCBs (mg/kg)								
4,4'-DDD	3 / 17	0.0099	ND	YES	2.7	0.0037	0.2	NO
4,4'-DDE	5 / 17	0.032	0.0392	NO	1.9	0.017	0.2	NO
4,4'-DDT	2 / 17	0.1	ND	YES	1.9	0.053	0.5	NO
Aroclor-1260	1 / 17	0.11	ND	YES	0.083	1.3	44	NO
BHC-alpha	1 / 17	0.0061	ND	YES	0.1	0.061	0.2	NO
Chlordane-alpha	1 / 17	0.0046	ND	YES	0.49	0.0094	2.1	NO
Chlordane-gamma	1 / 17	0.0044	ND	YES	0.49	0.0090	2.1	NO
INORGANICS (mg/kg)								
Arsenic	11 / 17	2.6	1.1	YES	0.43	6.0	NA	NA
Beryllium	6 / 17	0.49	ND	YES	0.15	3.3	NA	NA
			SUMMARY CANCER RISK RATIO:			11		
NON-CARCINOGENIC EFFECTS								
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
1,2-Dichloroethene (total)	1 / 17	0.006	ND	YES	700	0.0000086	0.2	NO
2-Butanone	1 / 17	0.004	ND	YES	47,000	0.000000085	8.7	NO
Acetone	9 / 17	0.13	ND	YES	7,800	0.000017	1.4	NO
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)								
Benzo (g,h,i) perylene	2 / 17	0.12	ND	YES	2,300	0.000052	320	NO
Fluoranthene	3 / 17	0.26	ND	YES	3,100	0.000084	280	NO
Pyrene	3 / 17	0.2	ND	YES	2,300	0.000087	290	NO

Continued on next page

TABLE A-5
Human Health Preliminary Risk Evaluation of Subsurface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [5]	Risk Ratio [5]	FDEP SCG [6]	Maximum Exceeds SCG?
INORGANICS (mg/kg)								
Aluminum	17 / 17	2090	2119	NO	78,000	NE	NA	NA
Arsenic	11 / 17	2.6	1.1	YES	23	0.11	NA	NA
Barium	14 / 17	19.9	3.6	YES	5,500	0.0036	NA	NA
Cadmium	1 / 17	0.72	ND	YES	39	0.018	NA	NA
Calcium	17 / 17	46700	115	YES	1,000,000	0.047	NA	NA
Chromium	17 / 17	33	3.7	YES	390	0.085	NA	NA
Cobalt	2 / 17	1	1.6	NO	4,700	NE	NA	NA
Copper	8 / 17	48.4	ND	YES	3,100	0.016	NA	NA
Iron	17 / 17	7260	264	YES	23,000	0.32	NA	NA
Lead	17 / 17	14.5	3.9	YES	400	0.036	NA	NA
Magnesium	16 / 17	949	32.8	YES	400,468	0.0024	NA	NA
Manganese	15 / 17	23.9	2.1	YES	390	0.061	NA	NA
Mercury	5 / 17	0.06	ND	YES	23	0.0026	NA	NA
Nickel	3 / 17	4	ND	YES	1,600	0.0025	NA	NA
Potassium	2 / 17	1660	185	YES	1,000,000	0.0017	NA	NA
Sodium	5 / 17	163	ND	YES	1,000,000	0.00016	NA	NA
Thallium	1 / 17	0.15	ND	YES	6.3	0.024	NA	NA
Vanadium	13 / 17	8.1	3.4	YES	550	0.015	NA	NA
Zinc	10 / 17	56.7	5.6	YES	23,000	0.0025	NA	NA
TOTAL PETROLEUM HYDROCARBONS (mg/kg)								
Total Petroleum Hydrocarbons	12 / 17	594	ND	YES	380	1.6	NA	NA
			SUMMARY NON-CANCER RISK RATIO:			2.3		

NOTES:

[1] Based on analytical data from the following sampling locations: 12B00102 to 12B00402, 13B00101, 13B00401, 13B00901 to 13B01301, 14B00102 to 14B00402 (duplicate at 14B00102).

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Values are from USEPA Region III RBC table, October 20, 1995 (USEPA, 1995). RBCs are for residential soil and are based on a hazard quotient of 1 or an excess lifetime cancer risk of 1 in 1 million.

Value for pyrene used as a conservative surrogate for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.

Value for alpha- and gamma-chlordane based on value for chlordane.

Arsenic is evaluated as a carcinogen and as a non-carcinogen.

Value for chromium based on hexavalent chromium.

RBC is not available for lead; value is from Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER Directive 9355.4-12).

TABLE A-5
Human Health Preliminary Risk Evaluation of Subsurface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	USEPA Region III RBC [5]	Risk Ratio [5]	FDEP SCG [6]	Maximum Exceeds SCG?

Value for mercury based on inorganic mercury.
Value for nickel based on nickel soluble salts.
RBC is not available for TPH. Values are screening values for gasoline and diesel oil derived by ABB-ES; derivation will be documented in methodolgy text of SSI Rep
Value for thallium is based on thallium chloride.

[5] The risk ratio is equal to the maximum detected analyte concentration divided by the USEPA Region III RBC. Risk ratios are calculated for anlaytes with a maximum detected concentration greater than the background concentration.
A summary cancer risk ratio of 1 roughly corresponds to excess lifetime cancer risk of $1x10^{-6}$; a summary non-cancer risk ratio of 1 roughly corresponds to a hazard index of 1. These ratios tend to overestimate risks, since they are based on maximum detected concentrations.

[6] Florida Department of Environmental Protection Soil Cleanup Goals for Florida (FDEP, September 29, 1995). Values presented are for leaching scenario.
Value for chromium based on chromium VI.

[7] Value is the leaching-based value. This analyte was detected in groundwater at a maximum concentration above the FDEP Guidance Concentration.

NA = Not available/Not applicable
ND = Not Detected
NE = Not Evaluated

TABLE A-6
Ecological Preliminary Risk Evaluation of Surface Water [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	Surface Water Screening Value [4]	Maximum Exceeds Screening Value ?
VOLATILES (µg/L)						
1,1-Dichloroethene	1 / 5	1.9	ND	YES	3.2	NO
1,2-Dichloroethene (cis)	3 / 5	1100	ND	YES	1350	NO
1,2-Dichloroethene (trans)	2 / 5	12	ND	YES	1350	NO
Tetrachloroethylene	2 / 5	9.4	ND	YES	84	NO
Trichloroethene	3 / 5	370	ND	YES	80.7	YES
Vinyl chloride	2 / 5	15	ND	YES	NA	NA

NOTES:
[1] Based on analytical data from the following sampling locations: 13W/D00101 to 13W/D00501.
[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.
[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean detected concentrations, presented for comparison purposes only.
[4] The surface water screening value is the lesser of the USEPA chronic AWQC, USEPA Region IV chronic water quality standard, or FDEP Class III Fresh Water Standard.
NA = Not Available/Not Applicable
ND = Not Detected

TABLE A-7
Ecological Preliminary Risk Evaluation of Sediment [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	Sediment Screening Value [4]	Maximum Exceeds Screening Value ?
VOLATILES (mg/Kg)						
1,1-Dichloroethene	2 / 5	0.021	ND	YES	NA	NA
1,2-Dichloroethene (cis)	4 / 5	23	ND	YES	NA	NA
1,2-Dichloroethene (trans)	2 / 5	0.26	ND	YES	NA	NA
Tetrachloroethylene	3 / 5	0.19	ND	YES	NA	NA
Trichloroethene	4 / 5	4.2	ND	YES	NA	NA
Vinyl chloride	2 / 5	0.069	ND	YES	NA	NA

NOTES:
[1] Based on analytical data from the following sampling locations: 13W/D00101 to 13W/D00501.
[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.
[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean detected concentrations, presented for comparison purposes only.
[4] Sediment screening values for chlorinated VOCs are not available; see discussion in text.
NA = Not Available/Not Applicable
ND = Not Detected

TABLE A-8
Ecological Preliminary Risk Evaluation of Surface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	Terrestrial PCL [4]	Maximum Exceeds PCL ?	Phytotoxicity Screening Value [5]	Maximum Exceeds Screening Value?	Invertebrate Screening Value [6]	Maximum Exceeds Screening Value?
VOLATILE ORGANIC COMPOUNDS (mg/kg)										
Acetone	2 / 10	0.042	ND	YES	19500	NO	200	NO	NA	NA
Tetrachloroethylene	3 / 10	0.011	ND	YES	3910	NO	1000	NO	150	NO
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)										
Benzo (a) anthracene	1 / 10	0.11	ND	YES	214	NO	25	NO	34	NO
Benzo (b) fluoranthene	1 / 10	0.22	ND	YES	214	NO	25	NO	34	NO
Benzo (g,h,i) perylene	1 / 10	0.18	ND	YES	214	NO	25	NO	34	NO
Benzo (k) fluoranthene	1 / 10	0.18	ND	YES	214	NO	25	NO	34	NO
Chrysene	1 / 10	0.2	ND	YES	214	NO	25	NO	34	NO
Indeno (1,2,3-cd) pyrene	1 / 10	0.14	ND	YES	214	NO	25	NO	34	NO
Pyrene	1 / 10	0.23	ND	YES	214	NO	25	NO	34	NO
PESTICIDES/PCBs (mg/kg)										
4,4'-DDE	2 / 10	0.0058	ND	YES	0.284	NO	12.5	NO	12	NO
4,4'-DDT	3 / 10	0.017	ND	YES	0.722	NO	12.5	NO	12	NO
Chlordane-alpha	1 / 10	0.0018	ND	YES	1.8	NO	12.5	NO	1	NO
Chlordane-gamma	1 / 10	0.0016	ND	YES	1.8	NO	12.5	NO	1	NO
INORGANICS (mg/kg)										
Aluminum	10 / 10	2180	2088	YES	7540	NO	[7] 2088	YES	NA	NA
Arsenic	4 / 10	0.84	1	NO	107	NE	10	NE	100	NE
Barium	10 / 10	5.8	8.7	NO	6390	NE	500	NE	NA	NA
Beryllium	2 / 10	0.13	0.09	YES	216	NO	10	NO	NA	NA
Cadmium	1 / 10	1.7	0.98	YES	1.82	NO	3	NO	50	NO
Calcium	10 / 10	12400	25295	NO	NA	NA	NA	NA	NA	NA
Chromium	9 / 10	16.4	4.6	YES	15300	NO	[7] 4.6	YES	50	NO
Copper	3 / 10	30.2	4.1	YES	662	NO	100	NO	30	YES
Iron	8 / 10	660	712	NO	NA	NA	NA	NA	NA	NA
Lead	8 / 10	40.9	14.5	YES	221	NO	50	NO	1,190	NO
Magnesium	10 / 10	175	328	NO	NA	NA	NA	NA	NA	NA
Manganese	9 / 10	14.7	8.1	YES	6650	NO	500	NO	NA	NA
Mercury	1 / 10	0.07	0.07	NO	10.4	NE	0.3	NE	36	NE
Nickel	3 / 10	9.2	4.4	YES	414	NO	30	NO	400	NO
Vanadium	6 / 10	2.5	3.1	NO	195	NE	[7] 3.1	NE	NA	NA
Zinc	6 / 10	52.9	17.2	YES	251	NO	50	YES	130	NO
TOTAL PETROLEUM HYDROCARBONS (mg/kg)										
Total Petroleum Hydrocarbons	8 / 10	40.2	ND	YES	NA	NA	NA	NA	NA	NA

TABLE A-8

Ecological Preliminary Risk Evaluation of Surface Soil [1]

Area "C"
Naval Training Center
Orlando, Florida

ANALYTE	Frequency of Detection [2]	Maximum Detected Concentration	Background Concentration [3]	Maximum Exceeds Background?	Terrestrial PCL [4]	Maximum Exceeds PCL ?	Phytotoxicity Screening Value [5]	Maximum Exceeds Screening Value?	Invertebrate Screening Value [6]	Maximum Exceeds Screening Value?

NOTES:

[1] Based on analytical data for the following sample identifiers: 12B00101 to 12B00401 (duplicate at 12B00401), 14B00101 to 14B00401, and 13B00501.

[2] Frequency of Detection is equal to the number of samples in which the analyte is detected in relation to the total number of samples.

[3] The background screening value is twice the average of detected concentrations for inorganic analytes. For organic analytes, values are the mean of detected concentrations, presented for comparison purposes only.

[4] Screening values are Protective Contaminant Levels (PCLs). The value presented represents the lowest PCL for the short-tailed shrew, american robin, and red-fox.

[5] Phytotoxicity Screening Value from Suter (1994) and Huizebos et al. (1993)

[6] Invertebrate Screening Value from Neuhauser (1985), and others.

[7] Literature-based value is less than background value, therefore, background value is used as benchmark value.

NA = Not Available/Not Applicable

ND = Not Detected

NE = Not Evaluated. The maximum detected concentration is below the background concentration.

APPENDIX B

SURFACE WATER SCREENING VALUE CALCULATIONS

TABLE B-1
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER – LAKE DRUID
CHILD RESIDENT – SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
EXPOSURE PARAMETERS

ORLCRSWS	16-Jan-96

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical specific	ug/liter	
INGESTION RATE	IR	0.13	liters/day	USEPA, 1989a
AGE-SPECIFIC SURFACE AREA	SA_i	age-specific	cm^2	USEPA, 1989a
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	15	kg	USEPA, 1989a
AGE-SPECIFIC BODY WEIGHT	BW_i	age-specific	kg	USEPA, 1989a
DOSE ABSORBED PER EVENT	DA_{event}	chemical specific	mg/cm^2-event	Calculated
EXPOSURE TIME	ET	2.6	hours/day	USEPA, 1989b
EXPOSURE FREQUENCY	EF	45	days/year	USEPA, 1991a
EXPOSURE DURATION	ED	11	years	Assumption
AGE-SPECIFIC EXPSOURE DURATION	ED_i	age-specific	years	USEPA, 1989a
AGE-WEIGHTED SURFACE AREA [1]	$SA_{w/bdi}$	3066	cm^2-yr/kg	Calculated per USEPA, 1992
DIFFUSION DEPTH PER EVENT	PCevent	chemical specific	cm/event	Calculated per USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991b
NONCANCER	AT	11	years	Assumption
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	$liter/cm^3$	

[1] Age weighted, body weight normalized surface area
PC_{event} calculated per Dermal Exposure Assessment Appendix of this document.
Ingestion Rate = 0.13 l/day = 50 ml/hour x 2.6 hours/day x 0.001 l/ml
Surface Area assumes lower legs, hands, feet are exposed.
USEPA, 1989a. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.
USEPA, 1989b. Risk Assessment Guidance for Superfund, Volume I, Part A, EPA/540/1-89/002, December 1989.
USEPA, 1991a. Supplemental USEPA Region IV Guidance, March 21, 1991.
USEPA, 1991b. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".
USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B. See Table B-3.

EQUATIONS

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day) ^ -1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE-INGESTION} = \frac{CW \times IR \times EF \times ED \times CF1}{BW \times AT \times 365 \text{ days/yr}}$$

$$\text{INTAKE-DERMAL} = \frac{DA_{event} \times EV \times EF \times SA_{w/bdi}}{AT \times 365 \text{ days/yr}}$$

Where:
$SA_{w/bdi} = \text{Sum}(SA_i \times ED_i / BW_i)$
$DA_{event} = PC_{event} \times CW \times CF1 \times CF2$

Note:

For non-carcinogenic effects: AT = ED

TABLE B-1, continued
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER – LAKE DRUID
CHILD RESIDENT – SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
CARCINOGENIC EFFECTS

ORLCRSWS	16-Jan-96

COMPOUND	WATER CONCENTRATION [1]	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day)^-1	CANCER RISK INGESTION	PC_{EVENT} [2] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day)^-1	CANCER RISK DERMAL	TOTAL CANCER RISK
1,1-Dichloroethene	1.9	ug/liter	3.2E-07	6.0E-01	1.9E-07	5.22E-02	5.4E-07	6.0E-01	3.2E-07	5.1E-07
Tetrachloroethene	9.4	ug/liter	1.6E-06	5.2E-02	8.2E-08	2.03E-01	1.0E-05	5.2E-02	5.4E-07	6.2E-07
Trichloroethene	370	ug/liter	6.2E-05	1.1E-02	6.8E-07	5.90E-02	1.2E-04	1.1E-02	1.3E-06	2.0E-06
Vinyl chloride	15	ug/liter	2.5E-06	1.9E+00	4.8E-06	2.20E-02	1.8E-06	1.9E+00	3.4E-06	8.2E-06
				SUMMARY CANCER RISK	6E-06				6E-06	1E-05

[1] Exposure point concentrations for carcinogenic PAH compounds have been adjusted by application of USEPA Region IV Toxicity Equivalence Factors (February 10, 1992).
[2] This chemical-specific value has been calculated in a separate spreadsheet.
[3] Calculated from Oral CSFs.
ND = No data available

TABLE B-1, continued
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER - LAKE DRUID
CHILD RESIDENT - SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
NONCARCINOGENIC EFFECTS

ORLCRSWS 16-Jan-96

COMPOUND	WATER CONCENTRATION (mg/l)	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PC_{EVENT} [1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)^-1	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
1,1-Dichloroethene	1.9	ug/liter	2.0E-06	9.0E-03	2.3E-04	5.22E-02	3.4E-06	9.0E-03	3.8E-04	6.0E-04
Tetrachloroethene	9.4	ug/liter	1.0E-05	1.0E-02	1.0E-03	2.03E-01	6.6E-05	1.0E-02	6.6E-03	7.6E-03
Trichloroethene	370	ug/liter	4.0E-04	6.0E-03	6.6E-02	5.90E-02	7.5E-04	6.0E-03	1.3E-01	1.9E-01
Vinyl chloride	15	ug/liter	1.6E-05	ND		2.20E-02	1.1E-05	ND		
cis-1,2-Dichloroethene	1100	ug/liter	1.2E-03	9.0E-03	1.3E-01	3.93E-02	1.5E-03	9.0E-03	1.7E-01	3.0E-01
trans-1,2-Dichloroethene	12	ug/liter	1.3E-05	9.0E-03	1.4E-03	3.93E-02	1.6E-05	9.0E-03	1.8E-03	3.2E-03
SUMMARY HAZARD INDEX					2E-01				3E-01	5E-01

[1] This chemical-specific value has been calculated in a separate spreadsheet.
[2] Calculated from Oral RfDs.
ND = No data available

TABLE B-2
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER - LAKE DRUID
ADULT RESIDENT - SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
EXPOSURE PARAMETERS

ORLARSWS	16-Jan-96

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical specific	ug/liter	
INGESTION RATE	IR	0.13	liters/day	USEPA, 1989a
SURFACE AREA	SA	23,000	cm^2	USEPA, 1989a
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	70	kg	USEPA, 1991a
DOSE ABSORBED PER EVENT	DA_{event}	chemical specific	mg/cm^2-event	Calculated
EXPOSURE TIME	ET	2.6	hours/day	USEPA, 1989b
EXPOSURE FREQUENCY	EF	45	days/year	USEPA, 1991b
EXPOSURE DURATION	ED	24	years	Assumption
DIFFUSION DEPTH PER EVENT	PCevent	chemical specific	cm/event	Calculated per USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991a
NONCANCER	AT	24	years	Assumption
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm^3	

PC_{event} calculated per Dermal Exposure Assessment Appendix of this document.
Ingestion Rate = 0.13 l/day = 50 ml/hour x 2.6 hours/day x 0.001 l/ml
Surface Area assumes total body exposed.
USEPA, 1989a. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.
USEPA, 1989b. Risk Assessment Guidance for Superfund, Volume I, Part A, EPA/540/1-89/002, December 1989.
USEPA, 1991a. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters";
USEPA, 1991b. Supplemental Region IV Risk Assessment Guidance, March 26, 1991.
USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B. See Table B-3.

EQUATIONS

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day) ^ -1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE-INGESTION} = \frac{CW \times IR \times EF \times ED \times CF1}{BW \times AT \times 365\ \text{days/yr}}$$

$$\text{INTAKE-DERMAL} = \frac{DA_{event} \times EV \times EF \times ED \times SA}{AT \times BW \times 365\ \text{days/yr}}$$

Where:
$DA_{event} = PC_{event} \times CW \times CF1 \times CF2$

Note:

For non-carcinogenic effects AT = ED

TABLE B-2, continued
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER – LAKE DRUID
ADULT RESIDENT – SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION [1]	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day)^-1	CANCER RISK INGESTION	PC_{EVENT} [2] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day)^-1	CANCER RISK DERMAL	TOTAL CANCER RISK
1,1-Dichloroethene	1.9	ug/liter	1.5E-07	6.0E-01	8.9E-08	5.22E-02	1.4E-06	6.0E-01	8.3E-07	9.2E-07
Tetrachloroethene	9.4	ug/liter	7.4E-07	5.2E-02	3.8E-08	2.03E-01	2.7E-05	5.2E-02	1.4E-06	1.4E-06
Trichloroethene	370	ug/liter	2.9E-05	1.1E-02	3.2E-07	5.90E-02	3.0E-04	1.1E-02	3.3E-06	3.7E-06
Vinyl chloride	15	ug/liter	1.2E-06	1.9E+00	2.2E-06	2.20E-02	4.6E-06	1.9E+00	8.7E-06	1.1E-05
SUMMARY CANCER RISK					3E-06				1E-05	2E-05

[1] Exposure point concentrations for any carcinogenic PAHs have been adjusted by application of USEPA Region IV Toxicity Equivalence Factors (February 10, 1992)
[2] This chemical-specific value has been calculated in a separate spreadsheet
[3] Calculated from Oral CSFs.
ND = No data available

TABLE B-2, continued
INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER – LAKE DRUID
ADULT RESIDENT – SWIMMING
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
NONCARCINOGENIC EFFECTS

ORLARSWS	16-Jan-96

COMPOUND	WATER CONCENTRATION (mg/l)	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PC_{EVENT}[1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)^-1	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
1,1-Dichloroethene	1.9	ug/liter	4.4E-07	9.0E-03	4.8E-05	5.22E-02	4.0E-06	9.0E-03	4.5E-04	**4.9E-04**
Tetrachloroethene	9.4	ug/liter	2.2E-06	1.0E-02	2.2E-04	2.03E-01	7.7E-05	1.0E-02	7.7E-03	**7.9E-03**
Trichloroethene	370	ug/liter	8.5E-05	6.0E-03	1.4E-02	5.90E-02	8.8E-04	6.0E-03	1.5E-01	**1.6E-01**
Vinyl chloride	15	ug/liter	3.4E-06	ND		2.20E-02	1.3E-05	ND		
cis-1,2-Dichloroethene	1100	ug/liter	2.5E-04	9.0E-03	2.8E-02	3.93E-02	1.8E-03	9.0E-03	1.9E-01	**2.2E-01**
trans-1,2-Dichloroethene	12	ug/liter	2.7E-06	9.0E-03	3.1E-04	3.93E-02	1.9E-05	9.0E-03	2.1E-03	**2.4E-03**
SUMMARY HAZARD INDEX					**4E-02**				**4E-01**	**4E-01**

[1] This chemical-specific value has been calculated in a separate spreadsheet
[2] Calculated from Oral RfDs.
ND = No data available

TABLE B-3
CURRENT USE INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER - LAKE DRUID
ADULT AND/OR CHILD RESIDENT/ TRANSIENT
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

RSPCEV	16-Jan-96

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
Diffusion depth per event	PC_{event}	chemical specific	cm/event	
Permeability Constant	PC	chemical specific	cm/hr	USEPA, 1992
Duration of a Single Event	t_{event}	2.6	hr	USEPA,1989
Thickness of Stratum Corneum	L_{sc}	10	um	USEPA, 1992
Octanol-water partition coefficient/10^4	B	chemical specific	dimensionless	USEPA, 1992
Pi	π	3.14	dimensionless	USEPA, 1992
	T	chemical specific	hr	USEPA, 1992
Time to Reach Steady State	t^*	chemical specific	hr	USEPA, 1992
Stratum Corneum Diffusion Coefficient	D_{sc}	chemical specific	cm^2/hr	USEPA, 1992

EQUATIONS

INORGANICS

$$PC_{event} = PC \times t_{event}$$

ORGANICS

$$PC_{event} = 2PC \times (6T \times t_{event}/\pi)^{0.5}$$

Where $t_{event} < t^*$

and: $$PC_{event} = PC \times ((t_{event}/(1+B)) + 2T \times ((1+3B)/(1+B))$$

Where $t_{event} > t^*$

Note: $T = L_{sc}^2/6D_{sc}$

REFERENCES

USEPA,1989. Risk Assessment Guidance for Superfund, Volume I, Part A, EPA/540/1-89/002, December 1989. This value is receptor-specific

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications.

The term T is not calculated here. Values are provided in USEPA, 1992.

TABLE B-3,continued
CURRENT USE INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER - LAKE DRUID
ADULT AND/OR CHILD RESIDENT/ TRANSIENT
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

COMPOUND	INORGANIC OR ORGANIC? I/O	PC (cm/hr)	T (hr)	t* (hr)	B (unitless)	PC_{event} (cm/event)
1,1-Dichloroethene	O	1.6E-02	3.4E-01	8.2E-01	1.3E-02	5.22E-02
Tetrachloroethene	O	4.8E-02	9.0E-01	4.3E+00	2.5E-01	2.03E-01
Trichloroethene	O	1.6E-02	5.5E-01	1.3E+00	2.6E-02	5.90E-02
Vinyl chloride	O	7.3E-03	2.1E-01	5.1E-01	2.3E-03	2.20E-02
cis-1,2-dichloroethene	O	1.2E-02	3.4E-01	8.2E-01	7.2E-03	3.93E-02
trans-1,2-dichloroethene	O	1.2E-02	3.4E-01	8.2E-01	7.2E-03	3.93E-02

NA = Not applicable. For inorganic analytes, this term is not used to calculate PCevent.

REFERENCES:

Unless otherwise noted, values are taken from USEPA, 1992. Dermal Exposure Assessment:Principles and Applications,EPA/600/8-91/011B

TABLE B-4
CALCULATION OF SURFACE WATER SCREENING VALUES (SWSVs)

LAKE DRUID
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Analyte	EPC (ug/L)	Child Resident ELCR [a]	Adult Resident ELCR [b]	Total Resident ELCR [c]	SWSV Cancer [d]	Child Resident HQ [e]	SWSV Non-cancer [d]	Selected SWSV [f] (ug/L)
1,1-Dichloroethene	1.9	5.1E-07	9.2E-07	1.4E-06	1.3	6.0E-04	3167	**1.3**
Tetrachloroethene	9.4	6.2E-07	1.4E-06	2.0E-06	4.7	7.6E-03	1237	**4.7**
Trichloroethene	370	2.0E-06	3.7E-06	5.7E-06	64.9	1.9E-01	1947	**64.9**
Vinyl chloride	15	8.2E-06	1.1E-05	1.9E-05	0.8	NA	NA	**0.8**
cis-1,2-Dichloroethene	1100	NA	NA	NA	NA	3.0E-01	3667	**3667**
trans-1,2-Dichloroethene	12	NA	NA	NA	NA	3.2E-03	3750	**3750**

Notes:
[a] Calculated in Table B-1.
[b] Calculated in Table B-2.
[c] Sum of child and adult ELCRs.
[d] Calculated by solving for the surface water concentration at $ELCR = 1 \times 10^{-6}$ or HI = 1, based on the total resident ELCR or child resident HI, as described in text.
[e] Calculated in Table B-1. The greater of the child or adult resident HIs is selected as the basis of the SWSV.
[f] Value is the lesser of the SWSV cancer or SWSV non-cancer.

APPENDIX C

INDOOR AIR CALCULATIONS AND PRELIMINARY RISK EVALUATION

Indoor air concentrations of VOCs were also estimated using the farmer model as presented by USEPA (USEPA 1992) in conjunction with the USEPA recommended approach shown below for calculating indoor air concentrations. The farmer model calculates the flux of VOC across the soil-building slab boundary. The flux rate, expressed as micrograms per second per square centimeter at the building floor, is a function of soil porosity, pore space geometry, air diffusion coefficients, and the difference in concentration in the soil gas and the building air.

The indoor air concentration is calculated per USEPA guidance (USEPA 1992) as:

$$C_{indoor} = E/Q \tag{2}$$

where:

E	=	Contaminant infiltration rate
Q	=	Building ventilation rate

The building ventilation rate is calculated by:

$$Q = (ACH/3600) \times V \tag{3}$$

where:

ACH	=	Air changes per hour in building
V	=	Volume of building (m^3)
3600	=	Units conversion factor (sec/hr)

The contaminant infiltration rate of VOCs due to diffusion into the building is calculated by

$$E = J \times A \times F \times CF_1 \tag{4}$$

where:

J	=	Contaminant flux ($\mu g/cm^2$-sec)
A	=	Area of building floor in contact with soil gas (m^2) as described below.
F	=	Fraction of floor through which soil gas can enter (assumed here to be 100%)
CF_1	=	Units conversion factor (10^4 cm^2/m^2)

The contaminant flux is calculated per USEPA guidance (USEPA 1992):

and

$$J = D_s (C_g - C_2)\ CF_2 / L \quad (5)$$

$$D_s = D_A\ P_a^{10/3}\ / P_T^2 \quad (6)$$

where:

D_s	=	Effective diffusion coefficient (cm^2/sec)
D_A	=	Vapor phase diffusion coefficient in air (cm^2/sec)
P_a	=	Air filled porosity (unitless)
L	=	Distance from source to point of exit (cm)
P_T	=	Total soil porosity (unitless)
C_2	=	Background concentration in indoor air ($\mu g/m^3$) [assumed here to be zero]
CF_2	=	Units conversion factor (10^{-6} m^3/cm^3)

The estimated equilibrium soil gas concentration adjacent to the buildings is used here to represent the vapor phase concentration (C_g) at a theoretical source near the building. The equilibrium soil gas concentration is estimated by assuming that VOCs in well OLD-13-01A are in equilibrium with soil gas at the water table. The soil gas concentration is estimated by the use of the dimensionless Henry's Law Constant.

The estimated soil gas concentration, C_g is:

$$C_g = C_{gw} \times H \times CF_3 \quad (7)$$

where:

C_{gw}	=	Concentration of VOC in groundwater (μg/liter)
H	=	Dimensionless Henry's Law Constant
CF_3	=	Units conversion factor (1000 liters/m^3)

There are several conservative assumptions included in this model. The assumption that $C_2 = 0$ tends to somewhat overestimate the vapor migration into the buildings (USEPA 1992). The area of the building used here is intended to represent a 14 foot by 14 foot bedroom with 8 foot high ceilings. It is assumed that groundwater containing VOCs is beneath the entire area of that theoretical room. It is also assumed that the fraction of the floor through which gas can enter is 100 percent. If the floor overlying the soil is a concrete pad, then potential gas infiltration would be substantially lower.

The results of the farmer model evaluation, including estimated indoor air concentrations, are presented in Table C-1. The estimated indoor air concentrations have been compared to USEPA Region III Risk-Based Concentrations for ambient air in order to provide a preliminary evaluation of the risks potentially associated with exposure to these estimated concentrations. This comparison is presented in the following Table. Results are discussed in the PRE.

*Analyte	Estimated Indoor Air Concentration ($\mu g/M^3$)	USEPA Region III RBC For Ambient Air ($\mu g/M^3$)	Risk Ratio
Tetrachloroethylene	180	3.1	58
Trichloroethylene	8.29	1	8.3
		Summary Cancer Risk Ratio:	66
cis-1,2-dichloroethene	14.4	37	0.39
		Summary Noncancer Risk Ratio:	0.4

TABLE C-1
Farmer's Model approach to deriving indoor air concentrations associated with groundwater contamination

AREA "C"
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Compound	GW Concentration ug/liter (1)	Henry's Law Constant dimensionless at 20 deg C (2)	Equilibrium Soil Gas Concentration ug/cu m	Area of Building Floor sq m	Fraction of Floor	Air Changes per Hour	Volume of Building cu m	Diffusion Coefficient DsubA sq cm/sec 20 degrees C (2)	Air Filled Soil Porosity	Total Soil Porosity	Distance from Source to point of exit cm	Flux @max sg ug/sq cm-sec	Indoor Air Concentration @max sg ug/cu m
tetrachloroethylene	250	0.59	147,500	18.2	1	0.5	44.4	0.0759	0.35	0.55 SEAM	183	0.0000081106	180.45
trichlorloethylene	16	0.38	6,080	18.2	1	0.5	44.4	0.0846	0.35	0.55 SEAM	183	0.0000002808	6.28
cis-1,2-dichloroethene	29	0.32	9,280	18.2	1	0.5	44.4	0.0964	0.35	0.55 SEAM	183	0.0000004883	14.42

(1) Data from well OLD-13-01 samples 3/9/95
(2) From Haarhoff, J. and J.L. Cleasby, Evaluation of air stripping for the removal of organic drinking-water contaminants Water SA Vol 16, No 1, January 1990
183 cm = 6 feet from groundwater to building slab

APPENDIX B

SURFACE WATER AND SEDIMENT SAMPLING LOGS

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W00101 / U4D00101
Time: Start: 14:15 End: 16:55

Site: OU4 LAKE DRUID
Date: 5-2-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: 1.0 (FT)
SAMPLE DEPTH: 0-6" (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 28.5 °C pH: 6.31
SPECIFIC CONDUCTIVITY: 172 μmHOS
DISSOLVED O_2: N/A
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' B.L.S.

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [ ]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND, HIGH ORGANIC CONTENT, 15% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	NONE, ICE		U4W00101	
[ ]	[X]	NONE, ICE		U4D00101	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W00201/U4D00201
Time: Start: 10:06 End: 11:20

Site: OU4 LAKE DRUID
Date: 5-7-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[ ]POND/LAKE [X]SEEP CREEK

WATER DEPTH: 0.5 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: NA pH: 6.16
SPECIFIC CONDUCTIVITY: 155 umHos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [X]YES [ ]NO
TYPE: MS, MSD
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: 40% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W00201, U4W00201MS, MSD	
[ ]	[X]	ICE		U4D00201, U4D00201MS, MSD	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-7-96
Sample Location ID: U4W00301 / U4D00301
Time: Start: 14:45 End: 15:00
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[ ]POND/LAKE [X]SEEP CREEK

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 0.5 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 85 °F pH: 6.03
SPECIFIC CONDUCTIVITY: 180 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR DARK GREY TO BLACK
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: 50% RECOVERY
SILTY SAND DARK GREY TO BLACK

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W00301	
[ ]	[X]	ICE		U4D00301	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4D00401
Time: Start: 15:51 End: NA

Site: OU4 LAKE DRUID
Date: 5-7-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[ ]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[ ]ISOPROPYL ALCOHOL
[ ]DEIONIZED WATER
[ ]ALCONOX
[ ]HNO3 SOLUTION
[ ]POTABLE WATER
[ ]NONE

WATER DEPTH:________ (FT)
SAMPLE DEPTH:________ (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE:________ pH:________
SPECIFIC CONDUCTIVITY:________
DISSOLVED O_2 :________
REDUCTION/OXIDATION POTENTIAL:________
OTHER:________

EQUIPMENT USED FOR SAMPLING:
[ ]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:________

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS.

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [X]NO
TYPE:________
SAMPLE OBSERVATIONS:
[ ]ODOR ________
[X]COLOR DARK GREY TO BLACK
OTHER:________

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ] ________

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS:
70% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[ ]	[X]	ICE		U4D00401	
[ ]	[X]	ICE		U4D00402	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

U4D00401 WAS TAKEN FROM TOP OF CORE, U4D00402 FROM BOTTOM.

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-7-96
Sample Location ID: U4D00501
Time: Start: 16:29 End: 16:51
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[ ]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[ ]ISOPROPYL ALCOHOL
[ ]DEIONIZED WATER
[ ]ALCONOX
[ ]HNO3 SOLUTION
[ ]POTABLE WATER
[ ]NONE

WATER DEPTH:________ (FT)
SAMPLE DEPTH:________(FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE:________ pH:________
SPECIFIC CONDUCTIVITY:________
DISSOLVED O_2:________
REDUCTION/OXIDATION POTENTIAL:________
OTHER:________

EQUIPMENT USED FOR SAMPLING:
[ ]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:________

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0 – 1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:________
SAMPLE OBSERVATIONS:
[ ]ODOR ________
[X]COLOR DARK BROWN TO BLACK
OTHER:________

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]________

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY SAND 80% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[ ]	[X]	ICE		U4D00501	TOP OF CORE
[ ]	[X]	ICE		U4D00502	BOTTOM OF CORE
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-7-96
Sample Location ID: U4W00601/U4D00601
Time: Start: 16:51 End: 16:59
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 0-1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 82°F pH: 5.95
SPECIFIC CONDUCTIVITY: 160 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: NA

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W00601	
[ ]	[X]	ICE		U4D00601	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W00701/U4D00701
Time: Start: 10:23 End: 10:42

Site: OU4 LAKE DEWD
Date: 5-8-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 0-1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 76.0 °F pH: 5.29
SPECIFIC CONDUCTIVITY: 188 umHOS
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[X]COLOR TAN-BROWN
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
~~[X]HNO3 SOLUTION~~ TJB 10-30-96
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND 40% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W00701	
[ ]	[X]	ICE		U4D00701	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-8-96
Sample Location ID: U4W00801 / U4D00801
Time: Start: 11:03 End: 11:28
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 0-1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 77.0 °F pH: 6.33
SPECIFIC CONDUCTIVITY: 205 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR BROWN-TAN
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[ ]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[x]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND, 50% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]			U4W00801	
[ ]	[X]			U4D00801	TOP OF CORE
[ ]	[X]			U4D00802	BOTTOM OF CORE
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-8-96
Sample Location ID: U4W00901/U4D00901
Time: Start: 14:40 End: 14:55
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 4 (FT)
SAMPLE DEPTH: 0-0.5' (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 84.0 °F pH: 6.50
SPECIFIC CONDUCTIVITY: 200 umHos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [X]YES [ ]NO
TYPE: DUPLICATE
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR DARK BROWN TO TAN
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[+]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY SAND 75% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W00901	
[X]	[ ]	ICE		U4W00901 DUPLICATE	
[ ]	[X]	ICE		U4D00901	
[ ]	[X]	ICE		U4D00901 DUPLICATE	
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01001/U4D01001
Time: Start: 15:25 End: 16:43

Site: OU4 LAKE DRUID
Date: 5-8-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 87.0 °F pH: 4.72
SPECIFIC CONDUCTIVITY: 160 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[ ]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: 25% RECOVERY, MOSTLY ORGANIC

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W01001	
[ ]	[X]	ICE		U4D01001	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-8-96
Sample Location ID: U4W01101/U4D01101
Time: Start: 16:30 End: 16:35
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 0-1' (FT)
SAMPLE DEPTH: 0-0.5' (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 77°F pH: 5.37
SPECIFIC CONDUCTIVITY: 110 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[X]COLOR DARK BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND 40% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W01101	
[ ]	[X]	ICE		U4D01101	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU 4 IRA
Site: D114 LAKE DRUID
Project Number: 08519.70
Date: 5-9-96
Sample Location ID: U4W01201/U4D01201
Time: Start: 09:20 End: 09:25
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 75.0 °F pH: 5.70
SPECIFIC CONDUCTIVITY: 265 μmHos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS.

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [ ]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR DARK BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[x]SAND
[x]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND 40% RECOVERY 20% ORGANIC

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W01201	
[ ]	[x]	ICE		U4D01201	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-9-96
Sample Location ID: U4W01301/U4D01301
Time: Start: 09:51 End: 09:54
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 76.0 °F pH: 4.26
SPECIFIC CONDUCTIVITY: 255 umHos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: 10.1 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[X]COLOR DARK BROWN, GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY SAND 60% RECOVERY

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W01301	
[ ]	[X]	ICE		U4D01301	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01401/U4D01401
Time: Start: 14:20 End: 14:50

Site: OU4 LAKE DRUID
Date: 5-9-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 78.0 °F pH: 5.29
SPECIFIC CONDUCTIVITY: 195.0 umhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: -111.4 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5 BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[x]SAND
[x]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND 50% RECOVERY 20% ORGANIC

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W01401	
[ ]	[x]	ICE		U4D01401	TOP OF CORE
[ ]	[x]	ICE		U4D01402	BOTTOM OF CORE
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01501/U4D01501
Time: Start: 15:11 End: 15:25

Site: OU4 LAKE DRUID
Date: 5-9-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 78 °F pH: 4.58
SPECIFIC CONDUCTIVITY: 175 µmHOS
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: -35.9 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [ ]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[x]SAND
[x]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND 50% RECOVERY 20% ORGANICS

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W01501	
[ ]	[x]	ICE		U4D01501	TOP OF CORE
[ ]	[x]	ICE		U4D01502	BOTTOM OF CORE
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01601 / U4D01601
Time: Start: 15:35 End: 15:50

Site: OU4 LAKE DRUID
Date: 5-9-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 79 °F pH: 3.94
SPECIFIC CONDUCTIVITY: 132.0 μmhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: 92.4 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[X]COLOR DARK BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[X]SILT
[X]SAND
[X]ORGANIC
[ ]GRAVEL

COMMENTS: 50% RECOVERY, 20% ORGANICS, SILTY-SAND

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W01601	
[ ]	[X]	ICE		U4D01601	
[ ]	[X]	ICE		U4D01602	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-10-96
Sample Location ID: U4W01801/U4D01801
Time: Start: 09:55 End: 10:02
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 74.0°F pH: 5.25
SPECIFIC CONDUCTIVITY: 140 µmhos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: -88.9 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[ ]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR DARK BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE: COMMENTS:
[ ]CLAY
[x]SILT SILTY-SAND, 40% RECOVERY
[x]SAND 15% ORGANIC
[x]ORGANIC
[ ]GRAVEL

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W01801	
[ ]	[x]	ICE		U4D01801	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01701/U4D01701
Time: Start: 10:41 End: 10:48

Site: OU4 LAKE DRUID
Date: 5-10-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

WATER DEPTH: 1 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 75.0 °F pH: 5.30
SPECIFIC CONDUCTIVITY: 115 µmHos
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: 121.9 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [ ]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[x]COLOR DARK BROWN TO GREY
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[ ]DEIONIZED WATER
[ ]ALCONOX
[ ]HNO3 SOLUTION
[ ]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[x]SILT
[x]SAND
[x]ORGANIC
[ ]GRAVEL

COMMENTS: SILTY-SAND, 35% RECOVERY 15% ORGANICS

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W01701	
[ ]	[x]	ICE		U4D01701	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W01901
Time: Start: 14:50 End: 15:00

Site: OU4 LAKE DRUID
Date: 5-10-96

Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-6" (~~FT~~ BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 89 °F pH: 6.25
SPECIFIC CONDUCTIVITY: 220 µmhos
DISSOLVED O_2: 3.6 mg/L
REDUCTION/OXIDATION POTENTIAL: 179.4 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0 - 1.5' BLS

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W01901	
[ ]	[X]	ICE		U4D01901	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02001/U4D02001
Time: Start: 15:04 End: 15:48

Site: OU4 LAKE DRUID
Date: 5-10-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 85°F pH: 5.70
SPECIFIC CONDUCTIVITY: 200 μmhos
DISSOLVED O_2: 4.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 159.0 mV
OTHER: ______

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE: ______

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [x]NO
TYPE: ______
SAMPLE OBSERVATIONS:
[ ]ODOR ______
[ ]COLOR ______
OTHER: ______

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ] ______

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: ______

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W02001	
[ ]	[x]	ICE		U4D02001	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02101/U4D02101
Time: Start: 16:13 End: 16:32
Site: OU4 LAKE DRUID
Date: 5-10-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 88 °F pH: 6.67
SPECIFIC CONDUCTIVITY: 210 umHos
DISSOLVED O_2: 5.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 165.2 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	~~H4 pho~~ ICE		U4W02101	
[ ]	[x]	ICE		U4D02101	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02201/U4D02201
Time: Start: 17:17 End: 17:35

Site: OU4 LAKE DRUID
Date: 5-10-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 90 °F pH: 7.00
SPECIFIC CONDUCTIVITY: 195 µmHOS
DISSOLVED O_2: 4.4 mg/L
REDUCTION/OXIDATION POTENTIAL: 177.8 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W02201	
[ ]	[x]	ICE		U4D02201	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02301/U4D02301
Time: Start: 10:09 End: 10:24

Site: OU4 LAKE DRUID
Date: 5-11-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: ____ (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 69 °F pH: 6.41
SPECIFIC CONDUCTIVITY: 160 µmHos
DISSOLVED O_2: 4.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 191.8 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0 - 1.5' BLS

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W02301	
[ ]	[x]	ICE		U4D02301	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02401/U4D02401
Time: Start: 13:09 End: 13:35

Site: OU4 LAKE DRUID
Date: 5-11-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5' (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 95 °F pH: 7.21
SPECIFIC CONDUCTIVITY: 220 µmHos
DISSOLVED O_2: 7.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 151.5 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W02401	
[ ]	[X]	ICE		U4D02401	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: ~~[illegible]~~ ~~[illegible]~~ 10-30-96 08519.70
Date: 5-11-96
Sample Location ID: U4W02501/U4D02501
Time: Start: ~~14:10~~ 13:40 10-30-96 End: 14:20
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: ______ (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 88°F pH: 6.46
SPECIFIC CONDUCTIVITY: 255 umHos
DISSOLVED O_2: 5.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 207.9 mV
OTHER: ______

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE: ______

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0 - 1.5' BLS

QA SAMPLES COLLECTED
AT THIS LOCATION? [ ]YES [x]NO
TYPE: ______
SAMPLE OBSERVATIONS:
[ ]ODOR ______
[ ]COLOR ______
OTHER: ______

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ] ______

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: ______

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W02501	
[ ]	[x]	ICE		U4D02501	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-11-96
Sample Location ID: U4W02601/U4D02601
Time: Start: 14:58 End: 15:40
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[X]ALCONOX
~~[x]HNO3 SOLUTION~~ RPB 10 30 96
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 86°F pH: 5.01
SPECIFIC CONDUCTIVITY: 245 umHos
DISSOLVED O_2: 4.1 mg/L
REDUCTION/OXIDATION POTENTIAL: 262.3 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [X]YES [ ]NO
TYPE: DUPLICATE
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
~~[x]S.S. SPLIT SPOON~~ RPB 10-30-96
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W02601	
[ ]	[X]	ICE		U4D02601	
[ ]	[x]	ICE		U4D02601D	DUPLICATE
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02701/U4D02701
Time: Start: 10:53 End: 11:30

Site: OU4 LAKE DRUID
Date: 5-12-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5' (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 79.0 °F pH: 4.80
SPECIFIC CONDUCTIVITY: 210 umHos
DISSOLVED O_2: 7.0 mg/L
REDUCTION/OXIDATION POTENTIAL: 279.0 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0 - 1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W02701	
[ ]	[X]	ICE		U4D02701	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W02801/U4D02801
Time: Start: 11:51 End: 12:05

Site: OU4 LAKE DRUID
Date: 5-2-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 82 °F pH: 5.69
SPECIFIC CONDUCTIVITY: 190 umHos
DISSOLVED O_2: 5.2 mg/L
REDUCTION/OXIDATION POTENTIAL: 257.9 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W02801	
[ ]	[x]	ICE		U4D02801	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-12-96
Sample Location ID: U4W02901/U4D02901
Time: Start: 15:03 End: 15:10
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NR (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 82 °F pH: 6.35
SPECIFIC CONDUCTIVITY: 183 μmHOS
DISSOLVED O_2: 5.6 mg/L
REDUCTION/OXIDATION POTENTIAL: 213.8
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W02901	
[ ]	[X]	ICE		U4D02901	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-12-96
Sample Location ID: U4W03001/U4D03001
Time: Start: ______ End: ______
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [x]NO
TEMPERATURE: 82 °F pH: 7.06
SPECIFIC CONDUCTIVITY: 183 umHos
DISSOLVED O_2: 5.6 mg/L
REDUCTION/OXIDATION POTENTIAL: 195
OTHER: ______

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE: ______

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0 - 1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [x]YES [ ]NO
TYPE: MS, MSD
SAMPLE OBSERVATIONS:
[ ]ODOR ______
[ ]COLOR ______
OTHER: ______

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ] ______

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: ______

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W03001	
[x]	[ ]	ICE		U4W03001MS	
[x]	[ ]	ICE		U4W03001MSD	
[ ]	[x]	ICE		U4D03001	
[ ]	[x]	ICE		U4D03001MS	
[ ]	[x]	ICE		U4D03001MSD	

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-13-96
Sample Location ID: U4W03101/U4D03101
Time: Start: 10:38 End: 11:31
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[x]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 85 °F pH: 6.60
SPECIFIC CONDUCTIVITY: 187 umHOS
DISSOLVED O_2: 5.8 mg/L
REDUCTION/OXIDATION POTENTIAL: 216.3
OTHER:

EQUIPMENT USED FOR SAMPLING:
[x]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [x]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[x]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[x]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[x]ISOPROPYL ALCOHOL
[x]DEIONIZED WATER
[x]ALCONOX
[ ]HNO3 SOLUTION
[x]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[x]	[ ]	ICE		U4W03101	
[ ]	[x]	ICE		U4D03101	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-13-96
Sample Location ID: U4W03201/U4D03201
Time: Start: 12:17 End: 12:55
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NR (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 89 °F pH: 5.99
SPECIFIC CONDUCTIVITY: 212 µmHos
DISSOLVED O_2: 2.8 mg/L
REDUCTION/OXIDATION POTENTIAL: 151.2 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0 - 1.5 ' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03201	
[ ]	[X]	ICE		U4D03201	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W03301/U4D03301
Time: Start: 11:07 End: 11:51

Site: OU4 LAKE DRUID
Date: 5-15-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 30 °C pH: 6.56
SPECIFIC CONDUCTIVITY: 168
DISSOLVED O_2: 6.4 mg/L
REDUCTION/OXIDATION POTENTIAL: 171.6
OTHER: ______

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE: ______

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [X]YES [ ]NO
TYPE: ______
SAMPLE OBSERVATIONS:
[ ]ODOR ______
[ ]COLOR ______
OTHER: ______

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ] ______

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS: ______

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03301	
[X]	~~[X]~~ 10-30-96	ICE		U4W03301D	DUPLICATE
[ ]	[X]	ICE		U4D03301	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-15-96
Sample Location ID: U4W03401/U4D03401
Time: Start: 12:21 End: 13:13
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 33 °C pH: 6.99
SPECIFIC CONDUCTIVITY: 172
DISSOLVED O_2: 7.2
REDUCTION/OXIDATION POTENTIAL: 176.7
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5 'BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03401	
[ ]	[X]	ICE		U4D03401	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-15-96
Sample Location ID: U4W03501 / U4D03501
Time: Start: 15:10 End: 16:16
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE)
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 31 °C pH: 6.59
SPECIFIC CONDUCTIVITY: 163 µmHos
DISSOLVED O_2: 7.4 mg/L
REDUCTION/OXIDATION POTENTIAL: 175.3 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[ ]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03501	
[ ]	[X]	ICE		U4D03501	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-15-96
Sample Location ID: U4W03601/U4D03601
Time: Start: 16:32 End: 17:28
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE), 3.5
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 31.5 °C pH: 6.89
SPECIFIC CONDUCTIVITY: 179 umhos
DISSOLVED O_2: 7.8 mg/L
REDUCTION/OXIDATION POTENTIAL: 188.0 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0 - 1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03601	
[X]	[ ]	ICE		U4W03602	1' UP FROM BOTTOM
[ ]	[X]	ICE		U4D03601	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W03701/U4D03701
Time: Start: 17:41 End: 18:13

Site: OU4 LAKE DRUID
Date: 5-15-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE), 1' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 30°C pH: 7.19
SPECIFIC CONDUCTIVITY: 160 mmhos
DISSOLVED O_2: 7.8 mg/L
REDUCTION/OXIDATION POTENTIAL: 200.4 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03701	
[X]	[ ]	ICE		U4W03702	1' ABOVE BOTTOM
[ ]	[X]	ICE		U4D03701	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W03801/U4D03801
Time: Start: 10:31 End: 11:00

Site: OU4 LAKE DRUID
Date: 5-16-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE), 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 83°F pH: 6.75
SPECIFIC CONDUCTIVITY: 165 umhos
DISSOLVED O_2: 6.2 mg/L
REDUCTION/OXIDATION POTENTIAL: 209.2 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	U4W03801			
[X]	[ ]	U4W03802			
[ ]	[X]	U4D03801			
[ ]	[ ]	ICE			
[ ]	[ ]	ICE			
[ ]	[ ]	ICE			

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W03901/U4D03901
Time: Start: 11:54 End: 12:40

Site: OU4 - LAKE DRUID
Date: 5-16-96
Signature of Sampler:

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 85 °F / 27°C pH: 7.16 / 6.89
SPECIFIC CONDUCTIVITY: 170 µmhos / 110 µmhos
DISSOLVED O_2: 7.4 mg/L / 5.4 mg/L
REDUCTION/OXIDATION POTENTIAL: 212.7 mV / 172.1 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W03901	
[X]	[ ]	ICE		U4W03902	
[ ]	[X]	ICE		U4D03901	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-21-96
Sample Location ID: U4W04001/U4D04001
Time: Start: 10:45 End: 11:38
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SAMPLE ~~WATER~~ DEPTH: 0-0.5 (FT) / 2' ABOVE BOTTOM
~~SAMPLE DEPTH: ___ (FT BELOW SURFACE)~~ MB 10-30-96
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 81/81 °F pH: 7.14/6.89
SPECIFIC CONDUCTIVITY: 120/110 umhos
DISSOLVED O_2: 6.8/5.4 mg/L
REDUCTION/OXIDATION POTENTIAL: 172.6/172.1 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04001	
[X]	[ ]	ICE		U4W04002	2' ABOVE BOTTOM
[ ]	[X]	ICE		U4D04001	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 TRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-21-96
Sample Location ID: U4W04101/U4D04101
Time: Start: 12:55 End: 13:18
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: NA / 28°C pH: NA / 5.06
SPECIFIC CONDUCTIVITY: NA / 197 umHos
DISSOLVED O_2: NA / 6.2 mg/L
REDUCTION/OXIDATION POTENTIAL: NA / 181.8
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04101	
[X]	[ ]	ICE		U4W04102	2' ABOVE BOTTOM
[ ]	[X]	ICE		U4D04101	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08514.70
Sample Location ID: U4W04201/U4D04201
Time: Start: 13:44 End: 14:16

Site: OU4 LAKE DRUID
Date: 5-21-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 28°C / NA pH: 6.56 / NA
SPECIFIC CONDUCTIVITY: 150 umHos / NA
DISSOLVED O_2: 4.6 mg/L / NA
REDUCTION/OXIDATION POTENTIAL: 173.2 mV / NA
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE:
0-1.5' BLS

QA SAMPLES COLLECTED
AT THIS LOCATION? [X]YES [ ]NO
TYPE: MS, MSD
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04201	
[ ]	[X]	"		U4D04201	
[ ]	[X]	"		U4D04201 MS	
[ ]	[X]	"		U4D04201 MSD	
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W04301/U4D04301
Time: Start: 14:38 End: 15:35

Site: OU4 LAKE DRUID
Date: 5-21-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: 16' (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: NA pH: NA
SPECIFIC CONDUCTIVITY: NA
DISSOLVED O_2: NA
REDUCTION/OXIDATION POTENTIAL: NA
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		~~U4~~W04301	
[X]	[ ]	"		U4W04302	
[ ]	[X]	"		U4~~D~~D04301	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W04401/U4D04401
Time: Start: 11:44 End: 12:34

Site: OU4 LAKE DRUID
Date: 5-22-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 32/32 °C pH: 6.73/6.27
SPECIFIC CONDUCTIVITY: 173/172 umhos
DISSOLVED O_2: 6.8/6.2 mg/L
REDUCTION/OXIDATION POTENTIAL: 163.8/179.1 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04401	
[X]	[ ]	"		U4W04402	
[ ]	[X]	"		U4D04401	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-22-96
Sample Location ID: U4W04501/U4D04501
Time: Start: 15:20 End: 16:12
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: 7.25 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 32°/32° C pH: 7.25/6.87
SPECIFIC CONDUCTIVITY: 189/156 umHOS
DISSOLVED O_2: 6.1/5.95 mg/L
REDUCTION/OXIDATION POTENTIAL: 154.7/194.1 mV
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04501	
[X]	[ ]	"		U4W04502	
[ ]	[X]	"	10-30	~~U4D0~~ U4D04501	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Project Number: 08519.70
Sample Location ID: U4W04601/U4D04601
Time: Start: 17:11 End: 18:01

Site: OU4 LAKE DRUID
Date: 5-22-96
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [ ]NO
TEMPERATURE: 31°/30° C pH: 7.00/5.96
SPECIFIC CONDUCTIVITY: 156/159 umhos
DISSOLVED O_2: 7.2/6.1 mg/L
REDUCTION/OXIDATION POTENTIAL: 204.2/221.0 mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04601	
[X]	[ ]	"		U4W04602	
[ ]	[X]	"		U4D04601	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 0851970
Date: 5-23-96
Sample Location ID: U4W04701/U4D04701
Time: Start: 13:51 End: 15:18
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

WATER DEPTH: 10.5 (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ~~BELOW~~ RAB 10-30-96 ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 32° / 32 °C pH: 7.14 / 6.64
SPECIFIC CONDUCTIVITY: 195 / 195 umhos
DISSOLVED O_2: 6.20 / 6.05 mg/L
REDUCTION/OXIDATION POTENTIAL: 179.0 / NA mV
OTHER:

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	ICE		U4W04701	
[X]	[ ]	"		U4W04702	
[ ]	[X]	"		U4D04701	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

SURFACE WATER AND SEDIMENT SAMPLE FIELD DATA RECORD

Project: NTC ORLANDO OU4 IRA
Site: OU4 LAKE DRUID
Project Number: 08519.70
Date: 5-23-96
Sample Location ID: U4W04801/U4D04801
Time: Start: 16:20 End: 17:10
Signature of Sampler: [signature]

SURFACE WATER INFORMATION

TYPE OF SURFACE WATER:
[ ]STREAM [ ]RIVER
[X]POND/LAKE [ ]SEEP

WATER DEPTH: NA (FT)
SAMPLE DEPTH: 0-0.5 (FT BELOW SURFACE) / 2' ABOVE BOTTOM
VELOCITY MEASUREMENT OBTAINED [ ]YES, SEE RECORD [X]NO
TEMPERATURE: 31 °C / NA pH: 6.90 / NA
SPECIFIC CONDUCTIVITY: 175 umHos / NA
DISSOLVED O_2: 7.8 mg/L / NA
REDUCTION/OXIDATION POTENTIAL: NA / NA
OTHER:

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

EQUIPMENT USED FOR SAMPLING:
[X]NONE, GRAB INTO BOTTLE
[X]BOMB SAMPLER
[ ]PUMP TYPE:

SEDIMENT INFORMATION

DEPTH OF SEDIMENT SAMPLE: 0-1.5' BLS

QA SAMPLES COLLECTED AT THIS LOCATION? [ ]YES [X]NO
TYPE:
SAMPLE OBSERVATIONS:
[ ]ODOR
[ ]COLOR
OTHER:

EQUIPMENT USED FOR COLLECTION:
[X]GRAVITY CORER
[ ]S.S. SPLIT SPOON
[ ]DREDGE
[ ]HAND SPOON
[ ]S.S. BOWL
[ ]S.S. BUCKET
[ ]

TYPE OF SAMPLE COLLECTED:
[X]DISCRETE
[ ]COMPOSITE

DECONTAMINATION FLUIDS USED:
[X]ISOPROPYL ALCOHOL
[X]DEIONIZED WATER
[X]ALCONOX
[ ]HNO3 SOLUTION
[X]POTABLE WATER
[ ]NONE

SEDIMENT TYPE:
[ ]CLAY
[ ]SILT
[ ]SAND
[ ]ORGANIC
[ ]GRAVEL

COMMENTS:

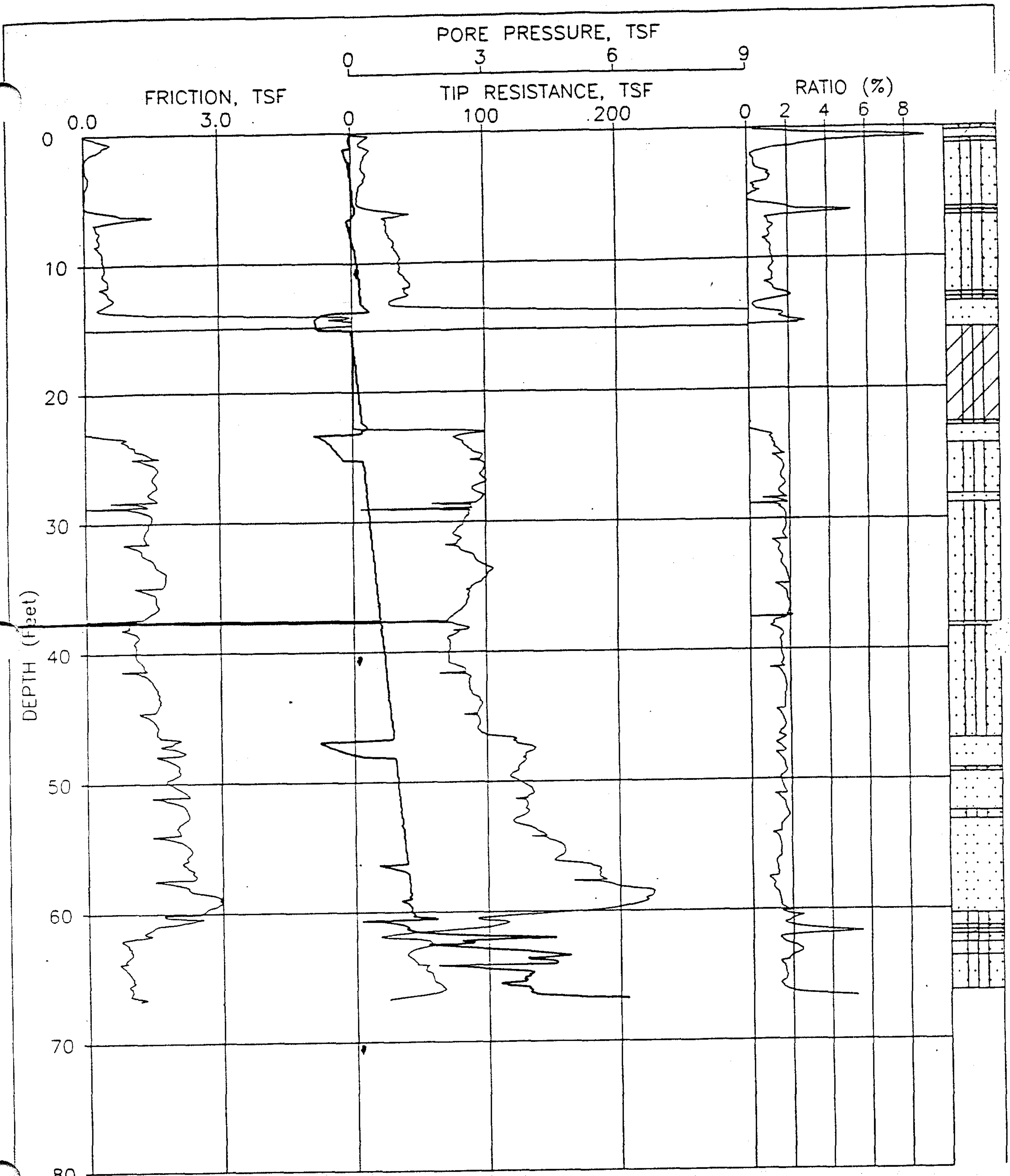
SAMPLES COLLECTED

SURFACE WATER	SEDIMENT	PRESERVATIVE	VOLUME REQUIRED	SAMPLE BOTTLE ID'S	COMMENTS:
[X]	[ ]	~~[illegible]~~ ICE		U4W04801	
[X]	[ ]	"		U4W04802	
[ ]	[X]	"		U4D04801	
[ ]	[ ]				
[ ]	[ ]				
[ ]	[ ]				

NOTES/SKETCH

APPENDIX C

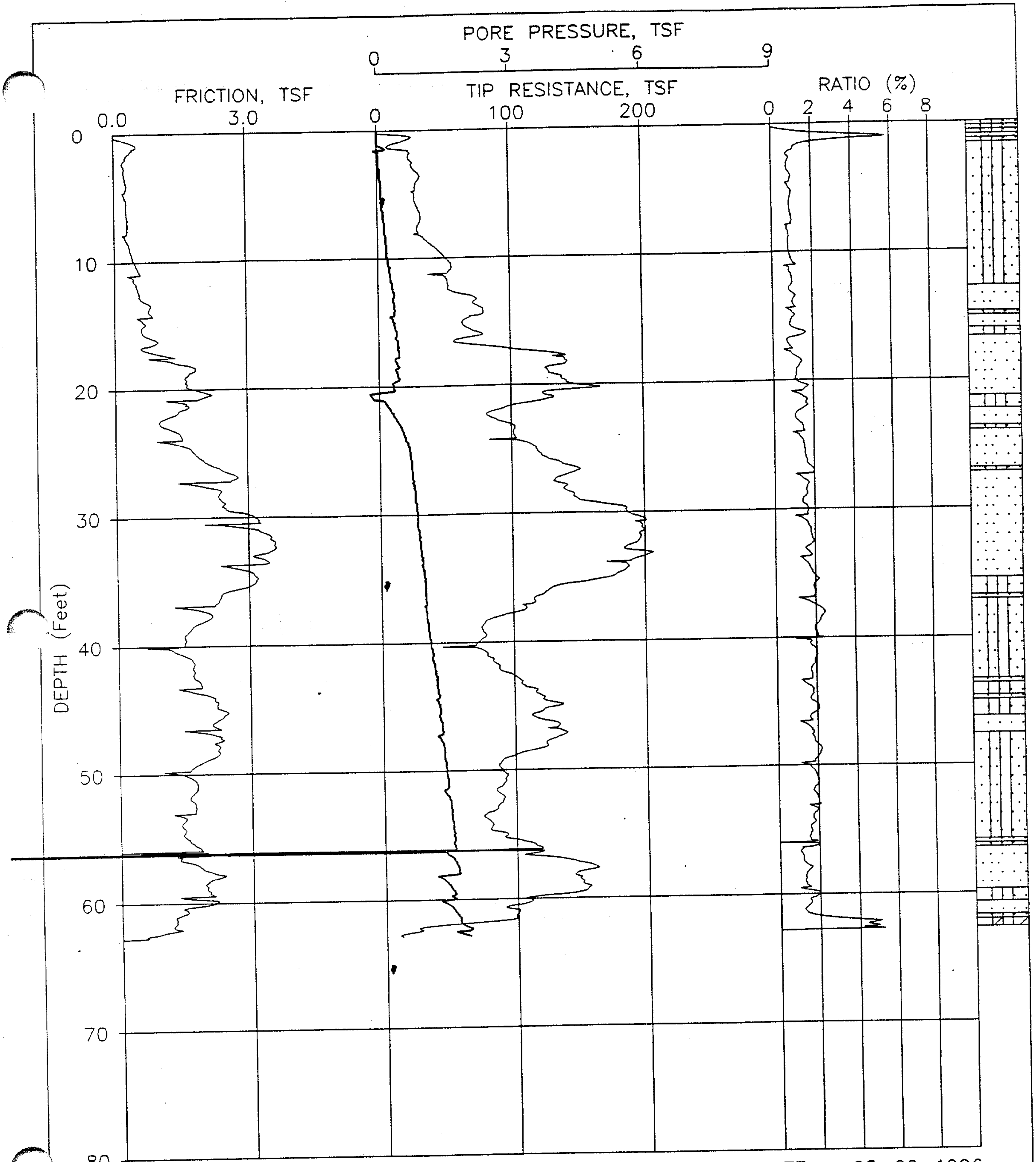
PIEZOCONE STRATIGRAPHIC LOGS



JOB NUMBER : 96-6079 CPT NUMBER : U4PZ-01 DATE : 05-21-1996

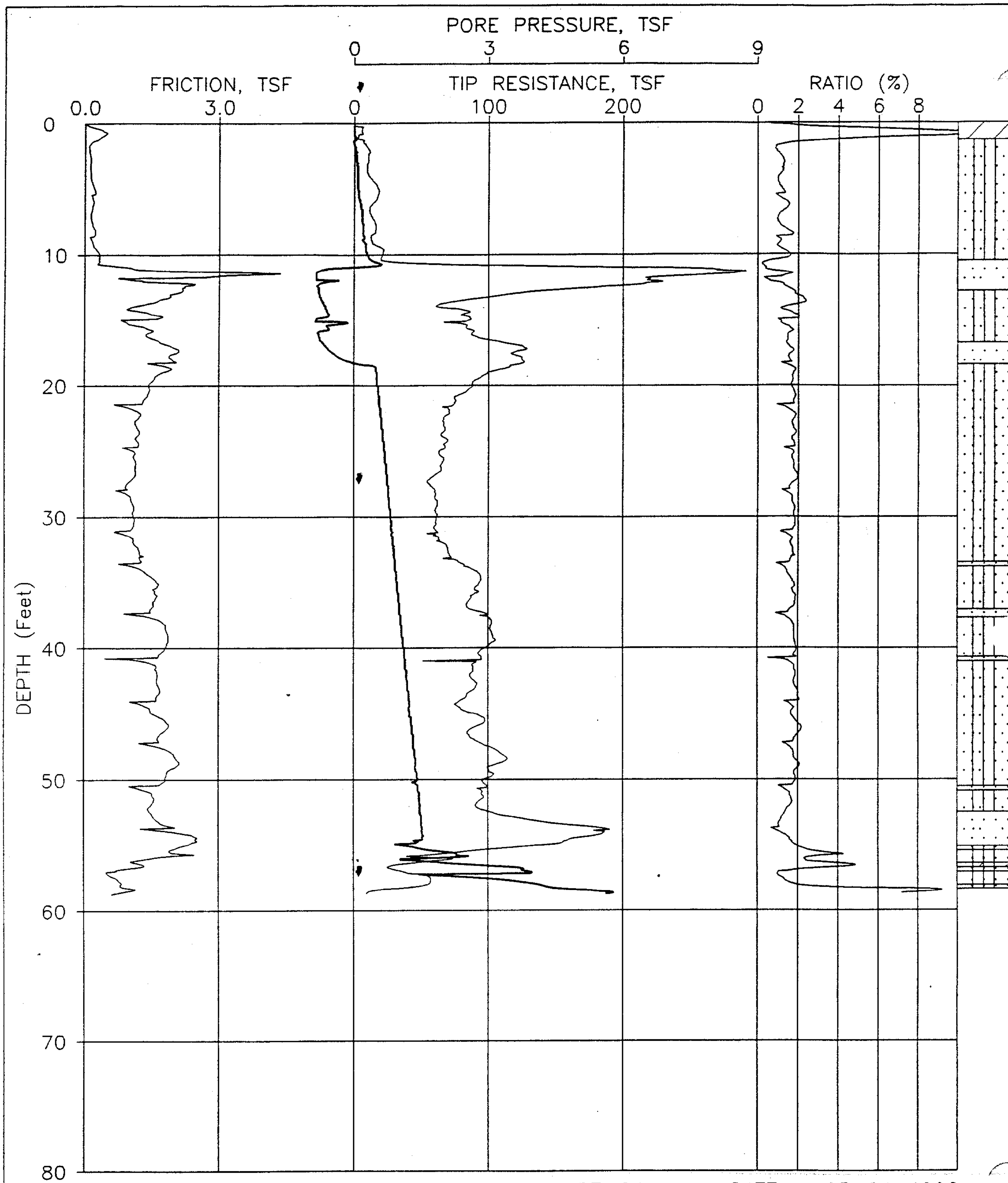
ELEVATION : 0.00 CONE NUMBER: F7.5CKEW807

FUGRO GEOSCIENCES,INC



JOB NUMBER : 96-6087
ELEVATION : 0.00
CPT NUMBER : U4PZ-03
CONE NUMBER: F7.5CKEW807
DATE : 05-20-1996

FUGRO GEOSCIENCES,INC

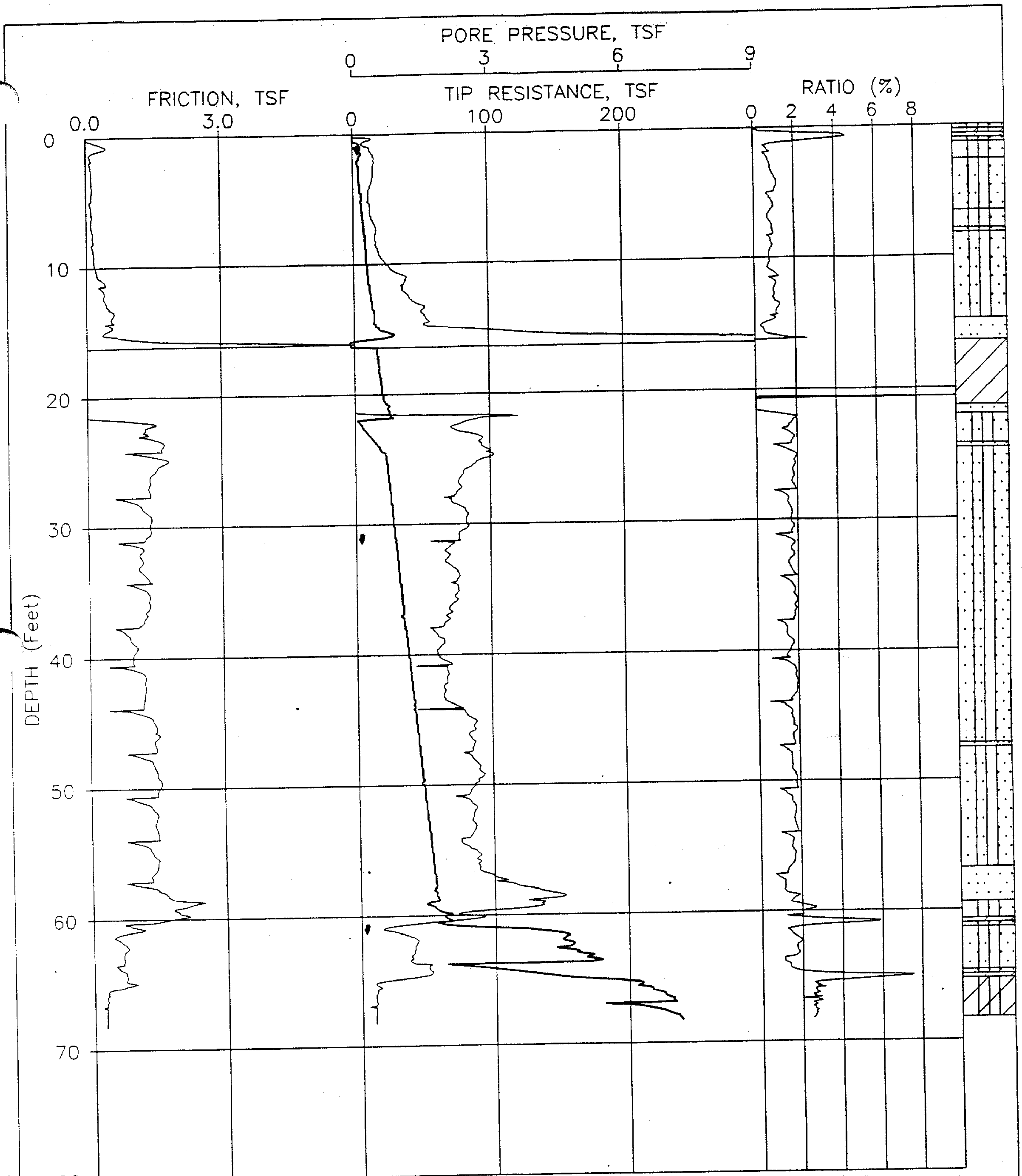


JOB NUMBER : 96-6079
ELEVATION : 0.00

CPT NUMBER : U4PZ-04
CONE NUMBER: F7.5CKEW807

DATE : 05-24-1996

FUGRO GEOSCIENCES,INC



JOB NUMBER : 96-6079
ELEVATION : 0.00

CPT NUMBER : U4PZ-10
CONE NUMBER: F7.5CKEW807

DATE : 06-01-1996

FUGRO GEOSCIENCES,INC

APPENDIX D

SOIL BORING LOGS

SOIL BORING LOG

Client: SOUTH NAVFACENGCOM	Project No. 8519.70		Point of Interest: OLD-13 14
Contractor: Alliance Envir. Inc	Date Started: 5/29/96		Boring No.:
Method: Mud Rotary	Casing Size: 8 in.		Protection: D
Ground Elev.:	Soil Drilled:		Completed: 6/4/96
Logged by: John Nash	Checked by:		PI Meter: Porta FID
Screen: 5 (ft.)	Riser: 57 (ft.)	Diam: 2 in. (ID)	Material: Stainless Steel
			Total Depth: 64 ft
			▽ Below Ground: ~2.5 ft
			Page 1 of: 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY %	FID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
						Quartz Sand: Dark Grey, fine grained, well sorted, trace silt	SP				
				35	Ø			2 2 / 1 3			
5				30	Ø	- Color change - Brown		2 2 / 2 2			
				30	Ø			2 3 / 3 2			
						- Color change - Dark Grey - Brown					
10				30	Ø			1 1 / 1 2			
				35	Ø	- Color change - Dark Brown		2 2 / 2 1			
				55	Ø	Little silt		5 5 / 7 5			
15				60	Ø	Quartz Sand: Brown, fine grained, little coarse grains, dry, dense		7 8 / 12 20 / 28 50 (3")			
				65	Ø	- Little silt, nodules of cemented sand		22 24			
				75	Ø	- Color change - Black, some silt		30 36 / 10 10			
20				50	Ø	Quartz Sand: Brown, fine, well sorted		12 11			
25				40	Ø	- Color change - Reddish Brown		4 9 / 9 9			
30				50	Ø			3 4 / 8 10			
35				25	Ø			3 5 / 7 10			
40				95	Ø	- less reddish		3 5 / 6 6			
45				25	Ø	- Color change - gray with greenish tint		4 12 / 12 10			
				50	Ø	- Little silt		6 8 / 12 12			
50											

PROPORTIONS	(-) AMOUNT (+)	ABBREVIATIONS		
Trace (tr)	0-10%	f = fine	gr = gray	MS = Split Spoon
Little (li)	10-20%	m = medium	bn = brown	BW = Screened Auger
Some (so)	20-35%	c = coarse	blk = black	HP = Hydropunch
and	35-50%			

SOIL BORING LOG

Client: SOUTHNAVFACENGCOM | Project No. 8519.70
Contractor: Alliance Envir. Inc | Date Started: 5/29/96
Method: Mud Rotary | Casing Size: 8 in.
Ground Elev.: | Soil Drilled:
Logged by: John Nash | Checked by:
Screen: 5 (ft.) | Riser: 57 (ft.) | Diam: 2 in (ID) | Material: Stainless Steel

Point of Interest: OLD-13-14
Boring No.:
Protection: D
Completed: 6/4/96
PI Meter: PorTa FID
Total Depth: 64 ft.
▽ Below Ground: ~2.5 ft
Page 2 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY %	FID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
							SP				
				40	Ø			5 6 / 8 15			
55											
				40	Ø			7 8 / 12 14			
60				100	Ø	SILTY QUARTZ SAND: Greenish-gray, fine, Little clay, slightly plastic	ML	6 7 / 8 10			
				100	Ø	SANDY SILTY CLAY: Greenish-gray, medium plasticity.	CL	2 3 / 3 4			
65											

PROPORTIONS	(-) AMOUNT (+)
Trace (tr)	0-10%
Little (li)	10-20%
Some (so)	20-35%
and	35-50%

ABBREVIATIONS

f = fine, m = medium, c = coarse
gr = gray, bn = brown, blk = black
MS = Split Spoon, BW = Screened Auger, HP = Hydropunch

SOIL BORING LOG

Client: SOUTH NAVFAC ENG COM	Project No. 8519.70
Contractor: Alliance Envir. Inc	Date Started: 5/17/96
Method: Mud Rotary	Casing Size: 8 in.
Ground Elev.:	Soil Drilled:
Logged by: John Nash	Checked by:
Screen: 5 (ft.) Riser: 57 (ft.)	Diam: 2 in. (ID) Material: Stainless Steel

Point of Interest: OLD-13-11
Boring No.:
Protection: D
Completed: 6/2/96
PI Meter: Porta FID
Total Depth: 64 ft.
▽ Below Ground: ~2 ft
Page 1 of: 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY %	FID (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	WELL DATA	LITHOLOGY	ELEVATION (FT.)
						Quartz Sand: Gray-Black, fine grained, well sorted	SP			
				25	Ø					
5				35	Ø	- Color change - Dark Brown				
				50	Ø					
				40	2	- Some silt				
10				75	2					
				100	2	Quartz Sand: Brown, finegrained, med. sorted				
15				75	3	- Begining at 13.5' bls layer is very dense. 16-21' bls: stringers of black cemented sand				
				50	1					
				30	3					
20				40	1	- Trace coarse qtz grains Quartz Sand: Brown, fine, well sorted, little silt				
				40	Ø					
25				50	Ø	- Color change - Reddish Brown				
				75	Ø					
				60	Ø					
30				70	Ø					
				80	Ø					
35				70	Ø					
40										
						Color change - gray w/greenish tint				
45				50	Ø					
50				65	Ø					

BLOWS/6-IN. (in order from top):

2	2
1	1
1	1
1	1
1	1
1	3
2	3
3	5
2	2
2	3
3	10
15	50
23	64
53	
28	32
55	
47	70 (3")
4	4
6	10
4	4
6	10
4	6
10	10
4	4
5	6
4	10
14	15
4	6
9	4
7	12
14	20
4	6
9	12
7	7
12	18
14	16
18	18

PROPORTIONS	(-) AMOUNT (+)
Trace (tr)	0-10%
Little (li)	10-20%
Some (so)	20-35%
and	35-50%

ABBREVIATIONS

f = fine, m = medium, c = coarse
gr = gray, bn = brown, blk = black
MS = Split Spoon, BW = Screened Auger, HP = Hydropunch

SOIL BORING LOG

Client: SOUTH NAVFAC ENG COM	Project No. 8519.70	Point of Interest: OLD-13-11	
Contractor: Alliance Envir. Inc.	Date Started: 5/17/96	Boring No.:	
Method: Mud Rotary	Casing Size: 8 in	Protection: D	
Ground Elev.:	Soil Drilled:	Completed: 6/2/96	
Logged by: John Nash	Checked by:	PI Meter: Porta FID	
Screen: 5 (ft.) Riser: 57 (ft.)	Diam: 2in (ID) Material: Stainless Steel	Total Depth: 64 ft	
		Below Ground: ~2 ft.	
		Page 2 of: 2	

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY %	FID HNU (ppm)	SOIL/ROCK DESCRIPTION	SOIL CLASS	BLOWS/6-IN.	WELL DATA	LITHOLOGY	ELEVATION (FT.)
								5 10			
								14 22			
55				55	Ø						
								4 15			
				45	Ø	SILTY QUARTZ SAND: Greenish-Gray, fine; little Clay, slightly plastic		15 20			
60							ML	5 7			
				95	Ø			9 9			
								4 4			
				100	Ø			7 8			
65											

PROPORTIONS	(-) AMOUNT (+)
Trace (tr)	0-10%
Little (li)	10-20%
Some (so)	20-35%
and	35-50%

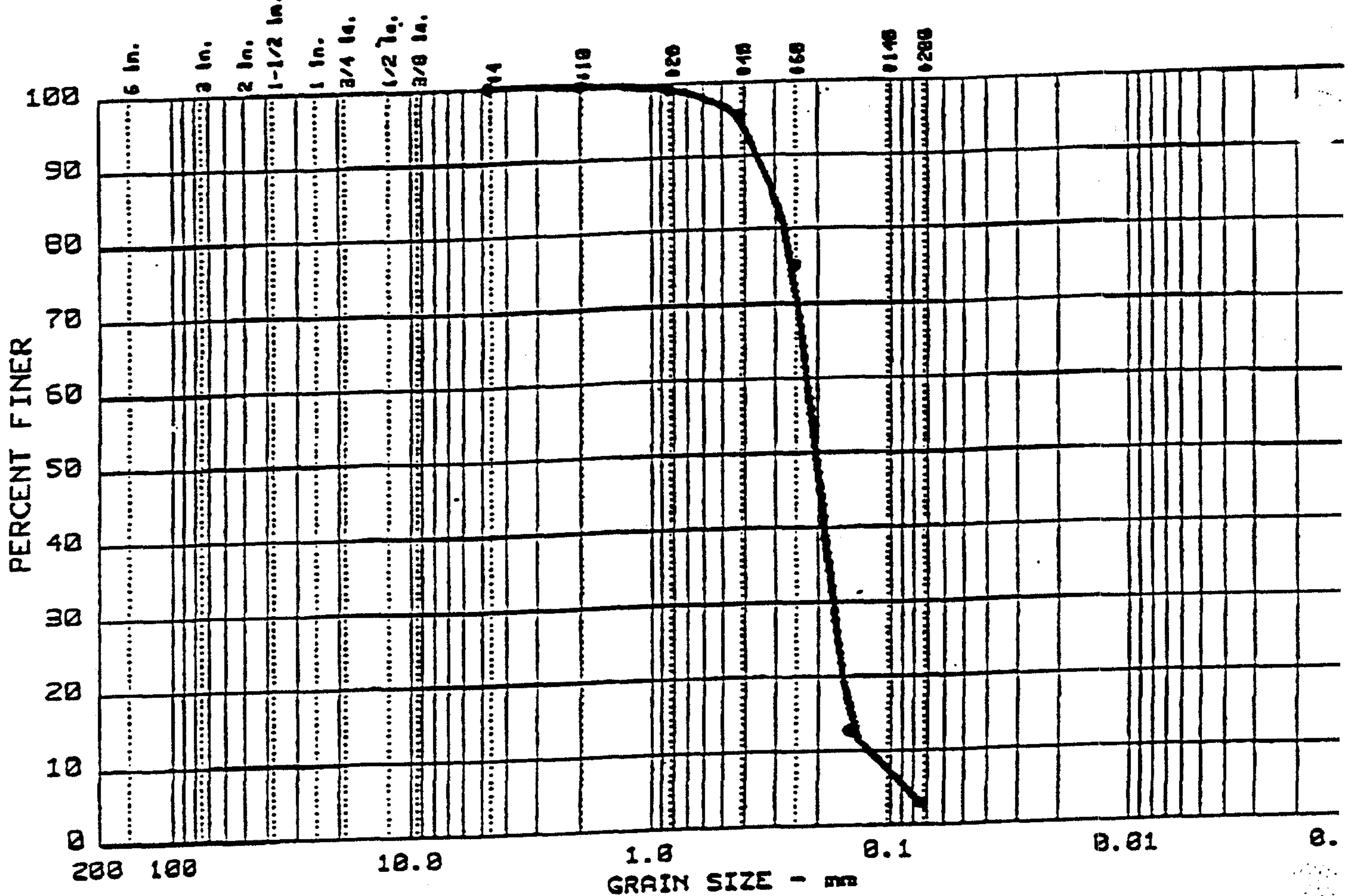
ABBREVIATIONS

f = fine	gr = gray	MS = Split Spoon
m = medium	bn = brown	BW = Screened Auger
c = coarse	blk = black	HP = Hydropunch

APPENDIX E

GRAIN-SIZE ANALYSIS

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	97.0	3.0		SP		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60}	0.22		
D_{30}	0.17		
D_{10}	0.12		
	COEFFICIENTS		
C_c	1.10		
C_u	1.8		

SIEVE number size	PERCENT FINER ●		
4	100.0		
10	100.0		
20	99.1		
40	95.4		
60	75.0		
100	12.8		
200	3.0		

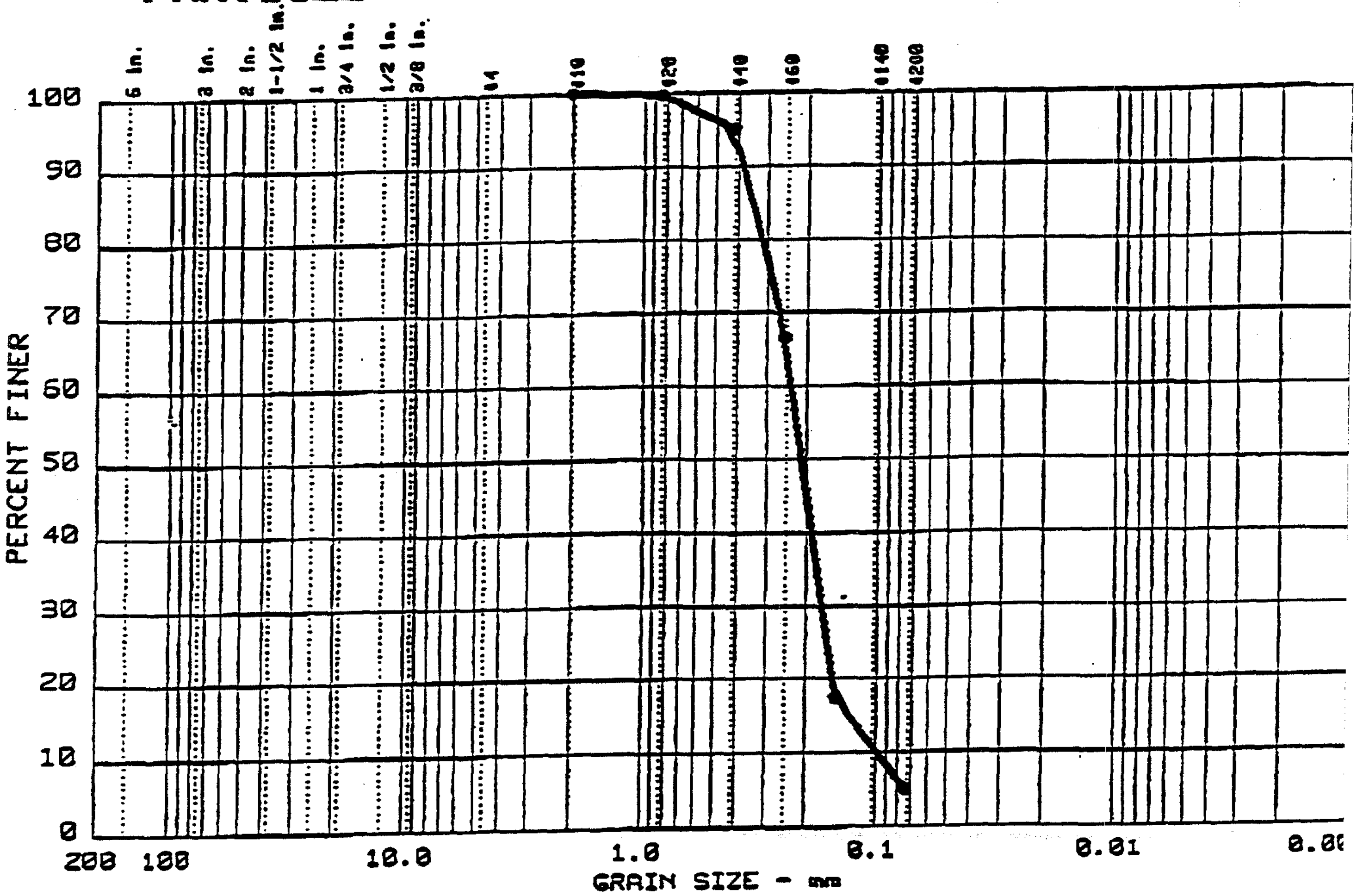
Sample information:
● U4SGS03
F SAND; Tr M Sa, Si, and C Sa.

Remarks:
SIEVE ONLY

ABB Environmental Services, Inc.

Project No.: 8519.70
Project: ORLANDO
Date: 06/12/96
Data Sheet No. 5

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	94.9	5.1		SP-SM		

SIEVE inches size	PERCENT FINER ●		

	GRAIN SIZE		
D_{60}	0.23		
D_{30}	0.17		
D_{10}	0.09		

	COEFFICIENTS		
C_c	1.28		
C_u	2.4		

SIEVE number size	PERCENT FINER ●		
10	100.0		
20	99.6		
40	95.0		
60	66.5		
100	17.4		
200	5.1		

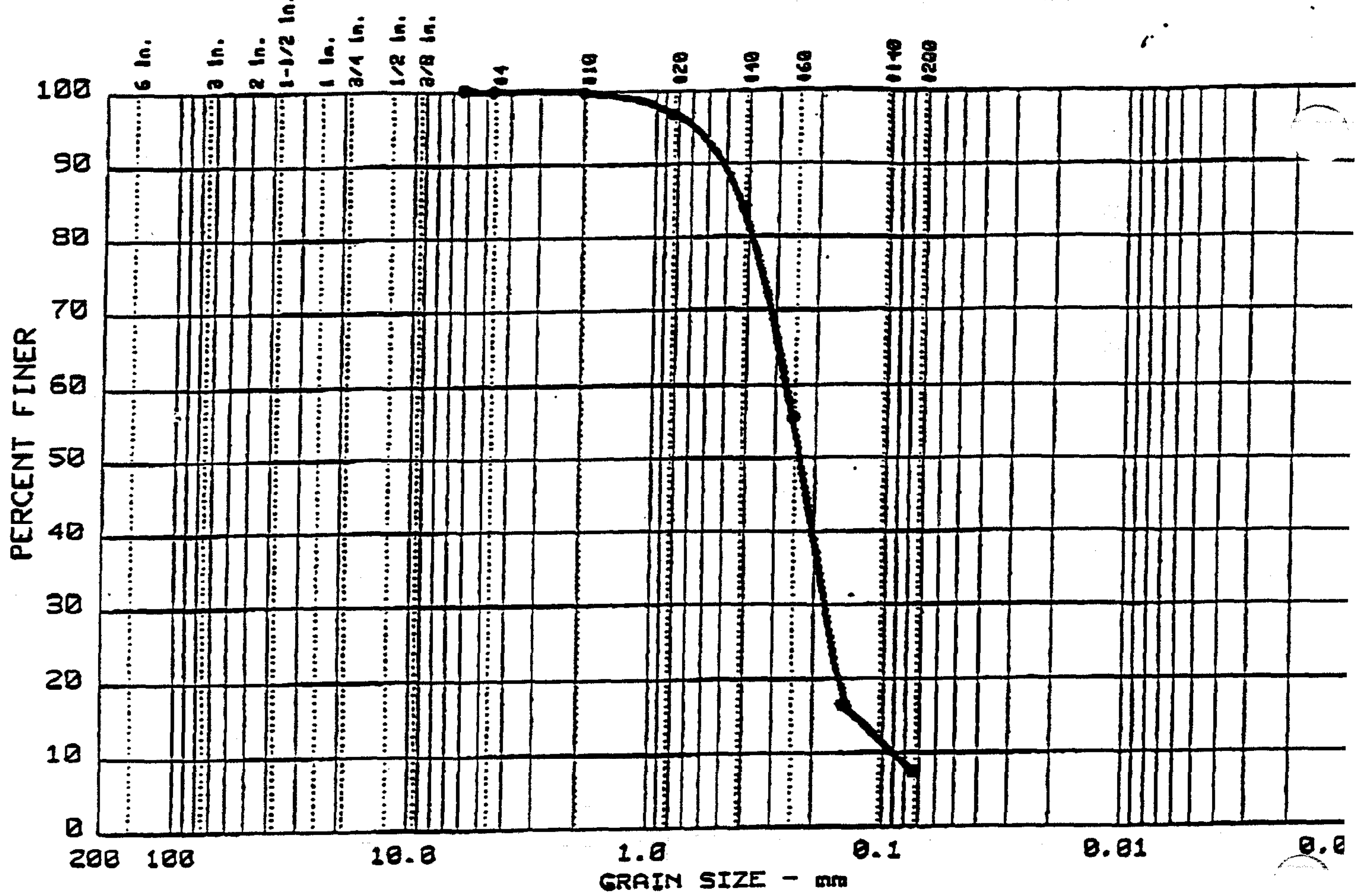
Sample information:
● U4SGS01
F SAND; Tr M Sa and Si.

Remarks:
SIEVE ONLY

ABB Environmental Services, Inc.

Project No.: 8519.70
Project: ORLANDO
Date: 06/12/96
Data Sheet No. 5

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.1	92.4	7.5		SP-SM		

SIEVE inches size	PERCENT FINER ●		
0.25	100.0		
	GRAIN SIZE		
D_{60}	0.27		
D_{30}	0.18		
D_{10}	0.08		
	COEFFICIENTS		
C_c	1.33		
C_u	3.0		

SIEVE number size	PERCENT FINER ●		
4	99.9		
10	99.7		
20	96.7		
40	84.1		
60	55.5		
100	16.4		
200	7.4		

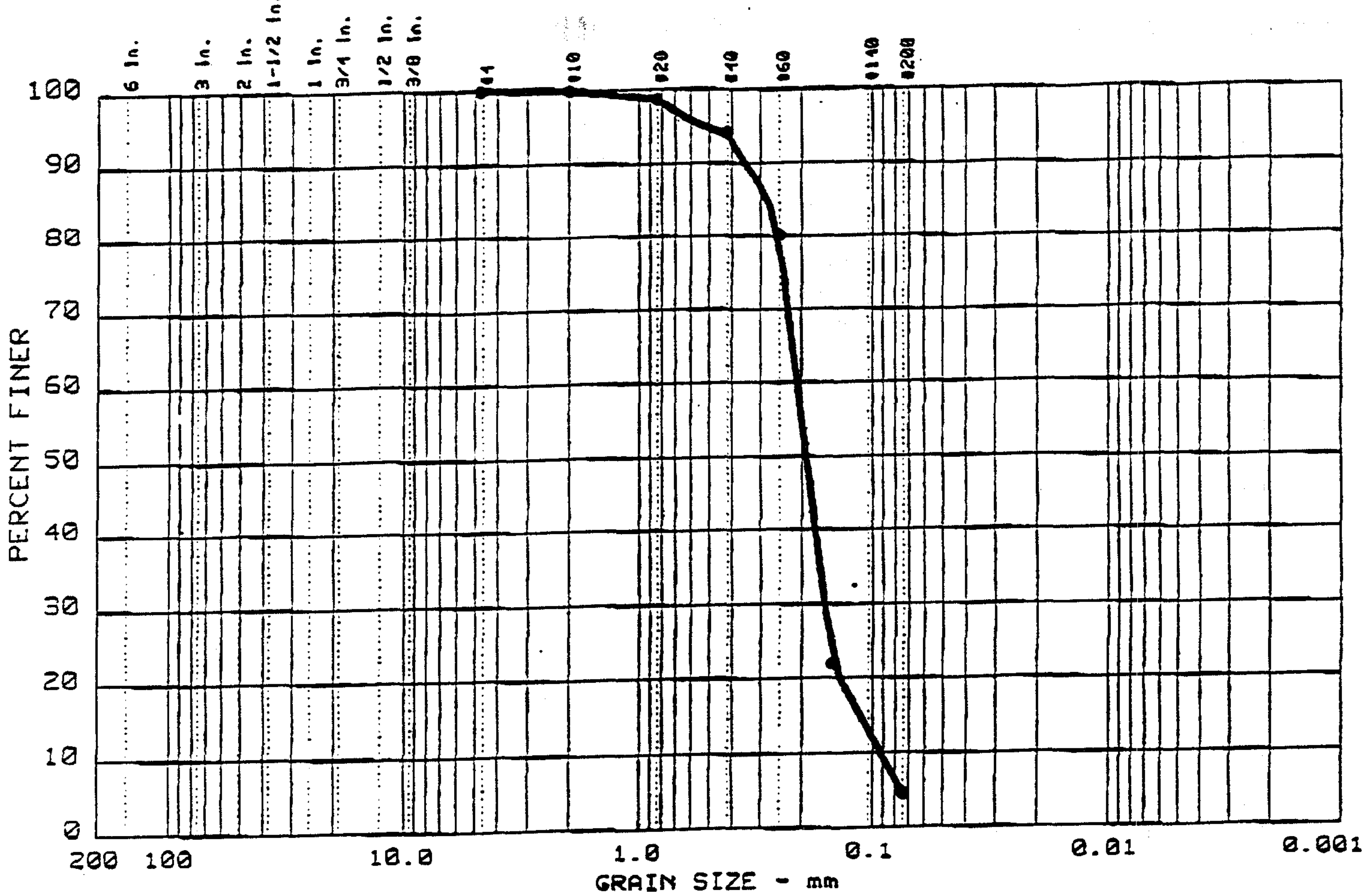
Sample information:
● U4SGS02
F SAND; Lttl M Sa;
Tr Sl, C Sa, and F Gvl

Remarks:
SIEVE ONLY

ABB Environmental Services, Inc.

Project No.: 8519.70
Project: ORLANDO
Date: 06/12/96
Data Sheet No. 5

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	95.5	4.5		SP		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60}	0.21		
D_{30}	0.16		
D_{10}	0.09		
	COEFFICIENTS		
C_c	1.33		
C_u	2.3		

SIEVE number size	PERCENT FINER ●		
4	100.0		
10	99.8		
20	98.7		
40	94.1		
60	80.1		
100	21.9		
200	4.5		

Sample information:
● U4SGS04
F SAND; Tr Si, and M and C Sa.

Remarks:
SIEVE ANALYSIS

ABB Environmental Services, Inc.

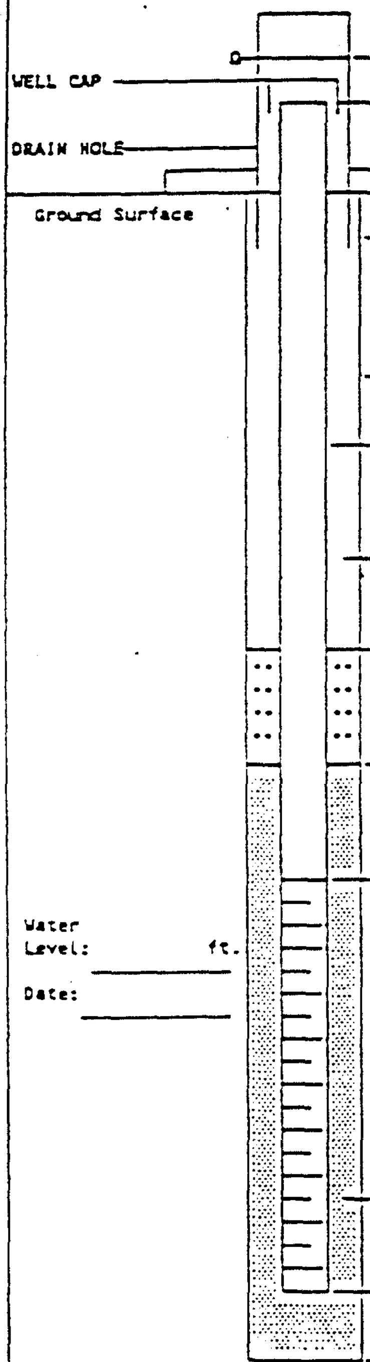
Project No.: 8519.70
Project: Orlando
Date: 6/19/96
Data Sheet No. 3

APPENDIX F

MONITORING WELL CONSTRUCTION LOGS

WELL INSTALLATION DIAGRAM

PROJECT: OU 4 IRA
SITE NAME: Area C
Site: NTC Orlando
PROJECT No.: 8514.70
DATE INSTALLED: 5/31/96
Well ID: OLD 13-09
ELEVATION:
DRILLING METHOD: Hollow Stem Auger
FIELD GEOLOGIST: John Nash
AUGER SIZE: 8" OD



ELEVATION OF TOP OF PROTECTIVE CASING: 3'
ELEVATION OF TOP OF WELL RISER: 2.5'
GRAVEL PAD
OUTSIDE DIAMETER OF SURFACE CASING: —
BOREHOLE DIAMETER: 8"
WELL RISER ID: 2"
TYPE OF RISER: 2" Stainless Steel
TYPE OF BACKFILL: Grout / 96% Type I Portland Cement / 4% Bentonite Gel
DEPTH TO TOP OF SEAL: 0' bls
TYPE OF SEAL: Bentonite pellets
DEPTH TO TOP OF SAND PACK: 0.5' bls
DEPTH TO TOP OF WELL SCREEN: 1' bls
TYPE OF WELL SCREEN: 2" Stainless Steel
WELL SCREEN ID: 2"
WELL SCREEN SLOT SIZE: 10
LENGTH OF WELL SCREEN: 10'
TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand
DEPTH TO BOTTOM OF WELL SCREEN: 11' bls
DEPTH OF BOREHOLE: 12' bls

WELL INSTALLATION DIAGRAM

Site: NTC Orlando

PROJECT: OU 4 IRA

PROJECT No.: 8519.70

ELEVATION:

FIELD GEOLOGIST: John Nash

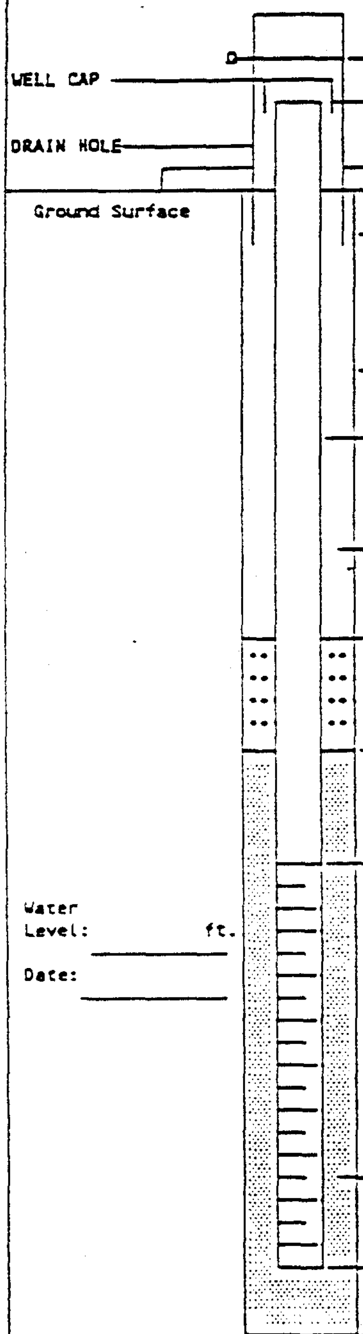
SITE NAME: Area C

DATE INSTALLED: 6/2/96

DRILLING METHOD: Mud Rotary

AUGER SIZE: 6"

Well ID: OLD-13-10



ELEVATION OF TOP OF PROTECTIVE CASING: 3'

ELEVATION OF TOP OF WELL RISER: 2.5'

GRAVEL PAD

OUTSIDE DIAMETER OF SURFACE CASING: 8"

BOREHOLE DIAMETER: 6"

WELL RISER ID: 2"

TYPE OF RISER: 2" Stainless Steel

TYPE OF BACKFILL: Grout / 96% Type I Portland Cement / 4% Bentonite Gel

DEPTH TO TOP OF SEAL: 12' bls

TPYE OF SEAL: Bentonite pellets

DEPTH TO TOP OF SAND PACK: 15' bls

DEPTH TO BOTTOM OF SURFACE CASING: 15' bls

DEPTH TO TOP OF WELL SCREEN: 16' bls

TYPE OF WELL SCREEN: 2" Stainless Steel

WELL SCREEN ID: 2"

WELL SCREEN SLOT SIZE: 10

LENGTH OF WELL SCREEN: 5'

TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand

DEPTH TO BOTTOM OF WELL SCREEN: 21' bls

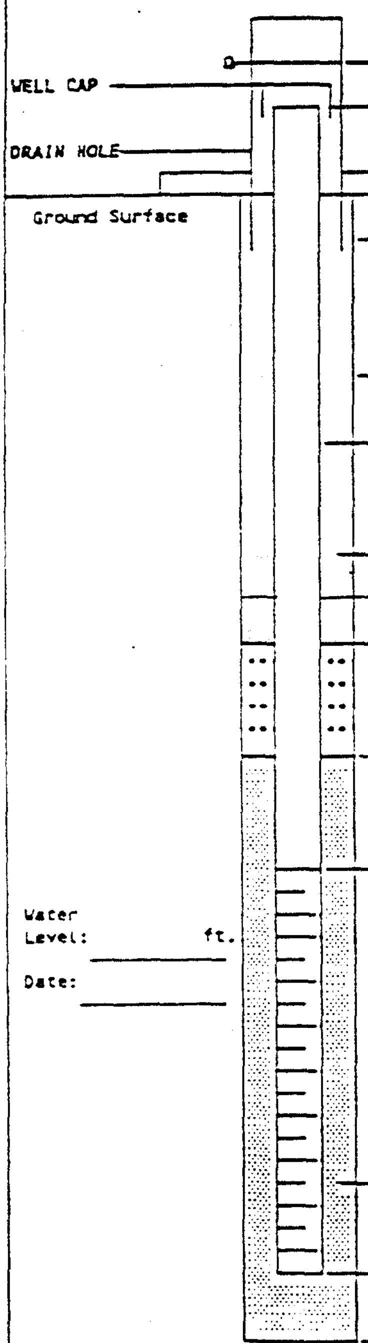
DEPTH OF BOREHOLE: 21' bls

WELL INSTALLATION DIAGRAM

PROJECT: OU 4 IRA
PROJECT No.: 8519.70
ELEVATION:
FIELD GEOLOGIST: John Nash

SITE NAME: Area C
DATE INSTALLED: 6/2/96
DRILLING METHOD: Mud Rotary
AUGER SIZE: 6"

Site: NTC Orlando
Well ID: OLD-13-11



Water Level: ft.
Date:

ELEVATION OF TOP OF PROTECTIVE CASING: 3'
ELEVATION OF TOP OF WELL RISER: 2.5'
GRAVEL PAD
OUTSIDE DIAMETER OF SURFACE CASING: 8"
BOREHOLE DIAMETER: 6"
WELL RISER ID: 2"
TYPE OF RISER: 2" Stainless Steel
TYPE OF BACKFILL: Grout - 4% Bentonite Gel, 96% Type I Portland Cement
DEPTH TO BOTTOM OF SURFACE CASING: 35.5' bls
DEPTH TO TOP OF SEAL: 52' bls
TPYE OF SEAL: Bentonite pellets
DEPTH TO TOP OF SAND PACK: 55' bls
DEPTH TO TOP OF WELL SCREEN: 57' bls
TYPE OF WELL SCREEN: 2" Stainless Steel
WELL SCREEN ID: 2"
WELL SCREEN SLOT SIZE: 10
LENGTH OF WELL SCREEN: 5'
TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand
DEPTH TO BOTTOM OF WELL SCREEN: 62' bls
DEPTH OF BOREHOLE: 62' bls

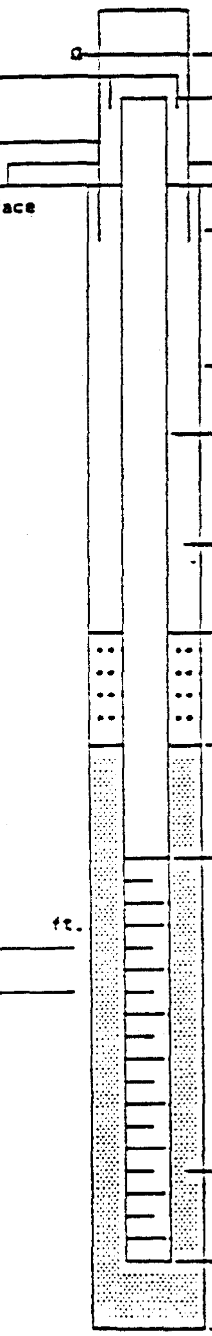
WELL INSTALLATION DIAGRAM

PROJECT: OU 4 IRA
SITE NAME: Area C
Site: NTC Orlando

PROJECT No.: 8519.70
DATE INSTALLED: 6/4/96
Well ID: OLD-13-12

ELEVATION:
DRILLING METHOD: Hollow Stem Auger

FIELD GEOLOGIST: John Nash
AUGER SIZE: 8" O.D.



WELL CAP

DRAIN HOLE

Ground Surface

ELEVATION OF TOP OF PROTECTIVE CASING: 3'

ELEVATION OF TOP OF WELL RISER: 2.5'

GRAVEL PAD

OUTSIDE DIAMETER OF SURFACE CASING: —

BOREHOLE DIAMETER: 8"

WELL RISER ID: 2"

TYPE OF RISER: Stainless Steel

TYPE OF BACKFILL: Grout / 96% Type I Portland Cement 4% Bentonite Gel

DEPTH TO TOP OF SEAL: 0' bls

TPYE OF SEAL: Bentonite pellets

DEPTH TO TOP OF SAND PACK: 1' bls.

DEPTH TO TOP OF WELL SCREEN: 1.5' bls

Water Level: ft.

Date:

TYPE OF WELL SCREEN: Stainless Steel

WELL SCREEN ID: 2"

WELL SCREEN SLOT SIZE: 10

LENGTH OF WELL SCREEN: 10'

TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand

DEPTH TO BOTTOM OF WELL SCREEN: 11.5' bls

DEPTH OF BOREHOLE: 11.5' bls

WELL INSTALLATION DIAGRAM

Site: NTC Orlando

PROJECT: OU 4 IRA

PROJECT No.: 8519.70

ELEVATION:

FIELD GEOLOGIST: John Nash

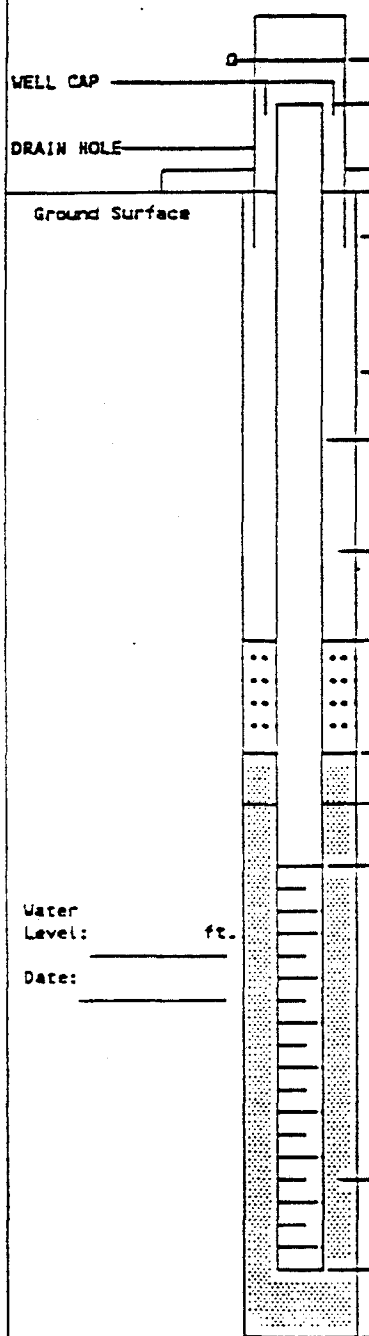
SITE NAME: Area C

DATE INSTALLED: 6/4/96

DRILLING METHOD: Mud Rotary

AUGER SIZE: 6"

Well ID: OLD-13-13



ELEVATION OF TOP OF PROTECTIVE CASING: 3'

ELEVATION OF TOP OF WELL RISER: 2.5'

GRAVEL PAD

OUTSIDE DIAMETER OF SURFACE CASING: 8"

BOREHOLE DIAMETER: 6"

WELL RISER ID: 2"

TYPE OF RISER : Stainless Steel

TYPE OF BACKFILL: Grout / 96% Type I Portland Cement / 4% Bentonite Gel

DEPTH TO TOP OF SEAL: 10' bls

TPYE OF SEAL: Bentonite pellets

DEPTH TO TOP OF SAND PACK: 14' bls

DEPTH TO BOTTOM OF SURFACE CASING: 15.5' bls

DEPTH TO TOP OF WELL SCREEN: 16' bls

TYPE OF WELL SCREEN: Stainless Steel

WELL SCREEN ID: 2"

WELL SCREEN SLOT SIZE: 10

LENGTH OF WELL SCREEN: 5'

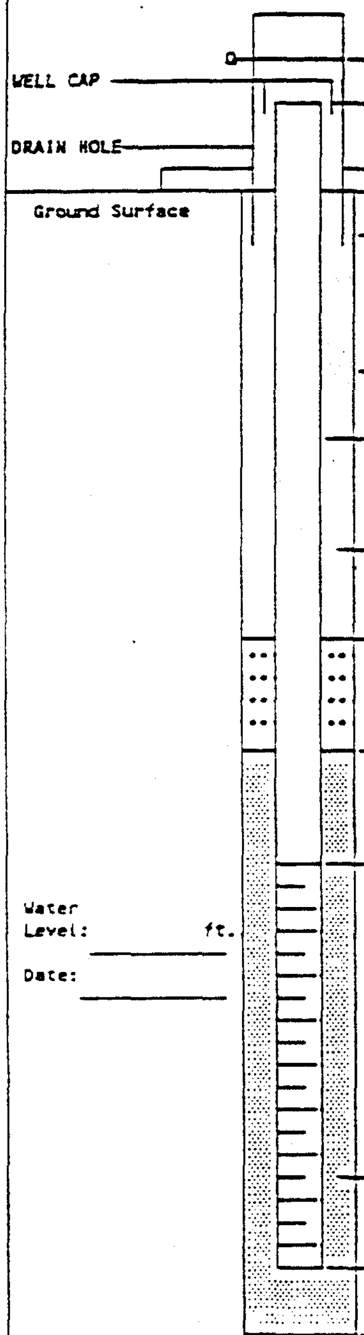
TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand

DEPTH TO BOTTOM OF WELL SCREEN: 21' bls

DEPTH OF BOREHOLE: 21' bls

WELL INSTALLATION DIAGRAM

PROJECT: OU4 IRA
SITE NAME: Area C
Site: NTC Orlando
PROJECT No.: 8519.20
DATE INSTALLED: 6/4/96
Well ID: OLD-13-14
ELEVATION:
DRILLING METHOD: Mud Rotary
FIELD GEOLOGIST: John Nash
AUGER SIZE: 6"



ELEVATION OF TOP OF PROTECTIVE CASING: 3'

ELEVATION OF TOP OF WELL RISER: 2.5'

GRAVEL PAD

OUTSIDE DIAMETER OF SURFACE CASING: 8"

BOREHOLE DIAMETER: 6"

WELL RISER ID: 2"

TYPE OF RISER : Stainless Steel

TYPE OF BACKFILL: Grout / 96% Type I Portland Cement / 4% Bentonite Gel

DEPTH TO BOTTOM OF SURFACE CASING: 45' bls

DEPTH TO TOP OF SEAL: 53' bls

TPYE OF SEAL: Bentonite pellets

DEPTH TO TOP OF SAND PACK: 55' bls

DEPTH TO TOP OF WELL SCREEN: 57' bls

TYPE OF WELL SCREEN: stainless Steel

WELL SCREEN ID: 2"

WELL SCREEN SLOT SIZE: 10

LENGTH OF WELL SCREEN: 5'

TYPE OF SAND PACK: 20/30 Foster Dixiana Filter Sand

DEPTH TO BOTTOM OF WELL SCREEN: 62' bls

DEPTH OF BOREHOLE: 62' bls

APPENDIX G

MONITORING WELL DEVELOPMENT LOGS

"Shallow"
@
#1

REV DATE: JAN 1989

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-09	Page 1 of 1
Installation: Hollow Stem Auger		Site: OU4
Project No.: 8519.70	Client/Project: NTC ORLANDO / OU4 IRA	
HAZWRAP Contractor:	Dev. Contractor:	
Dev. Start: 6/5/96 (12:33 P m)	Dev. End: 6/5/96 (13:20 P m)	Csg Dia.: 2"
Developed by: DAN HARTNETT		Dev. Rig (Y / N)

Dev. Method Submersible "whale" pump

Equipment Orion Model 250A (PH), YSI Model 33 (Cond/Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate 1.7 gpm

Total quantity of material bailed ______

Total quantity of water discharged by pumping 80 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
1234	—	—	—	V. Dark	24	5.84	135	
1252	—	—	—	Dark	24	5.58	140	
1315	—	—	—	Sl. Clear	24	5.66	145	
1320	—	—	—	—	—	—	—	End of Development

Intermediate
~~Shallow~~

10

REV. DATE: JAN 1992

WELL DEVELOPMENT LOG

WELL NO.: OLD-13-~~29~~ | Page 1 of 1

Installation: ~~Hollow Stem Auger~~ Mud Rotary | Site: OU4

Project No.: 8519.70 | Client/Project: NTC ORLANDO / OU4 IRA

HAZWRAP Contractor: | Dev. Contractor:

Dev. Start: 6/5/96 (8:35 am) | Dev. End: 6/5/96 (~~12~~ 12:25 pm) | Csg Dia.: 2"

Developed by: Dan Hartnett | Dev. Rig (Y/N)

Dev. Method: Submersible "whale" pump

Equipment: Orion Model 250 A (pH), YSI Model 33 (Cond./Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate 1 gpm

Total quantity of material bailed 3 gallons

Total quantity of water discharged by pumping 150 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/Color	Temp. °C	pH	Conductivity	Remarks
0835	—	—	—	—	—	—	—	Begin Pumping
0848	13	NM	NM	Sl. Cloudy	27	6.06	200	
0905	30	NM	NM	Clear	24	5.87	160	
0921	46	NM	NM	Same	24	5.77	150	
0941	66	NM	NM	Clear	24	5.81	140	
1000	85	NM	NM	mostly clear	24	5.63	140	
1005	90	—	—	—	—	—	—	Pump off
1125	—	—	—	—	—	—	—	Pump on
1135	100	NM	NM	mostly clear	26.5	5.65	170	
1155	120	NM	NM	Clear	24.5	5.50	125	
1215	140	NM	NM	V. Clear	24.5	5.63	120	
1225	150	NM	NM	V. Clear	24.5	5.63	125	pump off

Verp
@
#1

REV DATE: JA. 1990

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-11	Page 1 of 4
Installation: mud Rotary		Site: Area C
Project No.: 8519.70	Client/Project: ~~NAS~~ NTC Orlando OU 4 IRA	
Contractor:	Dev. Contractor:	
Dev. Start: 6-6-96 (09:20 Am)	Dev. End: 6-6-96 (12:47 Pm)	Csg Dia.: 2"
Developed by: Dan Hartnett		Dev. Rig (Y/N)

Dev. Method Waterra Hydro Lift pump

Equipment Orion Model 250 A pH meter; YSI Model 33 cond/Temp.

Pre-Dev. SWL 3.57 Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate 1.5 GPM gpm

Total quantity of material bailed None

Total quantity of water discharged by pumping 250 gallons

Disposition of discharge water

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
0920	0	—	—	clear w/ yellowish Tint	—	—	—	Begin pumping at 1GPm rate then increases to 1.5GPm
0945	37gal	—	N/m	"	25.5	11.58	1300	Notes:
1015	82gal	—	Nm	Clearer	25	11.25	1000	unable to obtain H2O
1045	127	—	Nm	clear	25	11.01	750	Levels while Waterra is
1115	172	—	Nm	clear	25	10.76	650	in operation
1145	200	—	NM	clear	25°	10.53	590	
1215	225	—	Nm	clear	25°	10.53	590	
1245	250	—	Nm	clear	25°	10.28	530	
End this stage of Development								

NM = Not Measured

REV DATE: JAN 1989

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-11	Page 2 of 4
Installation: Mud Rotary NTC		Site: Area C
Project No.: 2519.70	Client/Project: ~~NAS~~ ORLANDO OU4 IRA	
HAZWRAP Contractor:	Dev. Contractor:	
Dev. Start: 6/17/96 (10:52 am)	Dev. End: 6/17/96 (17:27 pm)	Csg Dia.: 2"
Developed by: John Nash		Dev. Rig (Y/N)

Dev. Method Grunfos submersible pump

Equipment Orion Model 250A PH meter; YSI Model 33 Cond./Temp.

Pre-Dev. SWL 3.30 ft Maximum drawdown during pumping 42.9 ft at 1.25 gpm

Range and Average discharge rate 1.25 gal/min. gpm

Total quantity of material bailed

Total quantity of water discharged by pumping 300

Disposition of discharge water

6/17/96 Continued from 6/6/96

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/Color	Temp. °C	pH	Conductivity	Remarks
1055	250	—	NM	clear	27	10.91	850	
1134	300	—	NM	clear	26	10.54	590	
1217	350	—	NM	clear	27	10.01	352	
1247	400	—	NM	clear	27	9.34	412	
1250	Stop development due to heavy rains							
1554	Begin pumping again							
1624	450	—	NM	clear	27.5	9.42	441	
1655	505	—	NM	clear	26	9.06	421	
1725	550	—	NM	clear	26	8.71	413	

REV DATE: JAN 1989

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-11	Page 3 of 4
Installation: Mud Rotary		Site: Area C
Project No.:	Client/Project: ~~NAS~~ NTC ORLANDO 1004 IRA	
HAZWRAP Contractor:	Dev. Contractor:	
Dev. Start: 6/13/96 (14:12 —m)	Dev. End: 6/18/96 (16:47 —m)	Csg Dia.: 2"
Developed by: John Nash		Dev. Rig (Y / N)

Dev. Method Grunfos submersible pump

Equipment Orion Model 250 A (PH), YSI Model 33 (Cond./Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm
Range and Average discharge rate ______ gpm
Total quantity of material bailed ______
Total quantity of water discharged by pumping 225 gallons
Disposition of discharge water ______

Continued from 6/6/96 & 6/17/96

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
1446	~~8~~575	—	—	—	27.5	9.66	431	
1449	580	—	—	—	27	9.64	415	
1455	595	—	—	—	26.5	9.37	405	
		—	—	—	26.5	9.12	410	
1503	605	—	—	—	26.5	8.65	402	
1510	615	—	—	—	26.5	8.37	403	
1517	630	—	—	—				
1528	650	—	—	—	26.5	8.03	399	
1532	660	—	—	—	26.5	8.03	397	
1544	680	—	—	—	26.5	7.54	392	
1555	695	—	—	—	26.5	7.42	389	
1611	720	—	—	—	26.5	7.39	389	
1619	730	—	—	—	26.5	7.23	382	
1630	750	—	—	—	26.5	7.06	378	
1637	765	—	—	—	26.5	7.01	372	
1646	775	—	—	—	26.5	6.95	373	
1647	—	—	—	—	—	—	—	End Developing

REV. DATE: JAN 1989

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-11	Page 4 of 4
Installation: Mud Rotary		Site: Area C
Project No.: 8519.70	Client/Project: NTC ORLANDO / OU4 IRA	
HAZWRAP Contractor:	Dev. Contractor:	
Dev. Start: 6/19/96 (9:37 Am)	Dev. End: 6/19/96 (11:52 Am)	Csg Dia.: 2"
Developed by: John Nash		Dev. Rig (Y/N)

Dev. Method Grundfos Submersible Pump

Equipment Orion Model 250A pH meter; YSI model 33 (Cond. / Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate ______ gpm

Total quantity of material bailed ______

Total quantity of water discharged by pumping 250 gallons

Disposition of discharge water ______

Continued from 6/3/96, 6/17/96 & 6/18/96

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
0937	775	—	—	—	26	9.25	389	
0955	815	—	—	—	26	8.42	392	
1002	825	—	—	—	26	7.39	385	
1016	850	—	—	—	26	7.10	378	
1021	860	—	—	—	26	7.16	380	
1028	875	—	—	—	26	7.16	366	
1044	905	—	—	—	26.5	7.15	360	
1057	925	—	—	—	26.5	6.90	358	
1112	950	—	—	—	26.5	6.7.	352	
1125	975	—	—	—	26.5	6.39	351	
1141	1000	—	—	—	26.5	6.82	351	
1152	1025	—	—	—	26.5	6.79	351	

"Shallow"
@ #10

REV DATE: JAN 1992

WELL DEVELOPMENT LOG

WELL NO.: OLD-13-12 | Page 1 of 1

Installation: Hollow Stem Auger | Site: OU4

Project No.: 8519.70 | Client/Project: NTC ORLANDO / OU4 IRA

HAZWRAP Contractor: | Dev. Contractor:

Dev. Start: 6/5/96 (18:00 _m) | Dev. End: 6/5/96 (19:00 _m) | Csg Dia.: 2"

Developed by: DAN HARTNETT | Dev. Rig (Y / N)

Dev. Method Submersible "whale" pump

Equipment Orion Model 250A (PH), YSI Model 33 (Cond./Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate 2 gpm

Total quantity of material bailed ______

Total quantity of water discharged by pumping 100 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/Color	Temp. °C	pH	Conductivity	Remarks
1800								Begin Developing
1805				Black	22.5	6.46	95	
1815				Black	22	6.07	95	
1830				Black	22	6.08	95	
1900								End Developing

Intermediate
@
#10

REV DATE: JAN 1992

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-13	Page 1 of 2
Installation: Mud Rotary		Site: OU 4
Project No.: 3519.70	Client/Project: NTC ORLANDO / OU4 IRA	
HAZWRAP Contractor:	Dev. Contractor:	
Dev. Start: 6/5/96 (14:45 __m)	Dev. End: 6/5/96 (17:50 __m)	Csg Dia.: 2
Developed by: DAN HARTNETT		Dev. Rig (Y/N)

Dev. Method Submersible "whale" pump

Equipment Orion Model 250A (pH) YSI Model 33 (Cond./Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate 1 gpm

Total quantity of material bailed ______

Total quantity of water discharged by pumping 150 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
1503	—	—	—	Sl. Cloudy	27	11.54	1700	
1530	—	—	—	Sl. Cloudy	26.5	11.90	2300	
1600	—	—	—	Clearer	25	11.24	750	
1630	—	—	—	Clear	25	0.81	455	
1705	—	—	—	Clear	24.5	10.25	390	
1730	—	—	—	V. Clear	24	10.05	325	
1745	—	—	—	V. Clear	24	9.93	320	
1750	—	—	—	—	—	—	—	End development

Intermediate
#10

WELL DEVELOPMENT LOG

WELL NO.: OLD-13-13 | Page 2 of 7

Installation: Mudd Rotary | Site: OU4

Project No.: 2519.70 | Client/Project: NTC ORLANDO / OU4 SRA

HAZWRAP Contractor: | Dev. Contractor:

Dev. Start: 6/24/96 (09:30 A m) | Dev. End: 6/24/96 (2:20 P m) | Csg Dia.: 2"

Developed by: John Nash | Dev. Rig (Y/N)

Dev. Method Grunfus submersible pump

Equipment Orion Model 250A (pH), YSI Model 33 (Cond. / Temp.)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm

Range and Average discharge rate ______ gpm

Total quantity of material bailed ______

Total quantity of water discharged by pumping 50 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
0944	5				26	11.44	1410	very clear
					25.5	11.47	920	
1014	10				25	11.37	750	
1030	12.5				25.5	11.26	700	
1044	15				26	11.10	580	
1116	20				26	10.91	474	
1145	25				26	10.53	409	
1217	30				27.5	10.56	380	
1250	35				26	10.41	375	
1319	40				25	10.16	342	
1349	45							
1418	50				25	9.93	338	
1420								Slowed pump down to begin purging

Deep
@
#10

REV DATE: JA. 1990

WELL DEVELOPMENT LOG	WELL NO.: OLD-13-14	Page 1 of 2
Installation: Mud Rotary		Site: Area C OU4 IRA
Project No.: 8519.70	Client/Project: NTC Orlando	
Contractor:	Dev. Contractor:	
Dev. Start: 6-6-96 (2:30 Pm)	Dev. End: 6/6/96 (5:42 Pm)	Csg Dia.: 2"
Developed by: DAN HARTNETT		Dev. Rig (Y / N)

Dev. Method Waterra Hydro Lift pump

Equipment Orion Model 250 A (pH) YSI Model 33 (Cond/Temp)

Pre-Dev. SWL ______ Maximum drawdown during pumping ______ ft at ______ gpm
Range and Average discharge rate 1/2 gpm gpm
Total quantity of material bailed None
Total quantity of water discharged by pumping 110 gallons
Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
1430	0	—	—	—	—	—	—	Begin pumping
1510	20	Nm	Nm	dk Brown	29°	6.18	500	
1542	36	Nm	Nm	"	27.5	5.87	265	unable to obtain H2O Levels while Waterra is in motion
1630		"	"	sl. lighter	28.	5.86	250	
1710		"	"	"	27.5	5.35	215	
1720		"	"	"	25.5	5.53	210	
1730		"	"	much clearer	25.5	5.53	170	
1740	110	"	"	sl. cloudy	25.5	5.51	180	
1742	End	this stage of development						

REV. DATE: JAN 1999

WELL DEVELOPMENT LOG

WELL NO.: OLD-13-14	**Page** 2 **of** 2	
Installation: Mud Rotary	**Site:** Area C	
Project No.: 8519.70	**Client/Project:** NTC ORLANDO	
HAZWRAP Contractor:	**Dev. Contractor:**	
Dev. Start: 6/13/96 (10:00 A m)	**Dev. End:** 6/13/96 (15:23 _ m)	**Csg Dia.:** 2"
Developed by: Harlan Faircloth		**Dev. Rig (Y / N)**

Dev. Method 2" Submersible Grunfos

Equipment Orion Model 250 A (PH), YSI Model 33 (Cond./Temp.)

Pre-Dev. SWL ______ **Maximum drawdown during pumping** ______ **ft at** ______ **gpm**

Range and Average discharge rate ______ **gpm**

Total quantity of material bailed ______

Total quantity of water discharged by pumping ~~225 gallons~~ 435 gallons

Disposition of discharge water ______

Time	Volume Removed (gal)	Water Level ft.BTOC	Turbidity	Clarity/ Color	Temp. °C	pH	Conductivity	Remarks
1001	1				28	6.01	330	
1026	70				28	5.02	179	
1040	115				28	4.97	168	
1057	165				28	4.99	171	
1114	210				28	5.17	177	
1119								Stopped pumping
1407								Begin pumping
1428	270				29	4.78	208	
1440	310				28.5	4.66	181	
1457	360				28	5.09	179	
1515	410				28	4.97	179	
1521	435				28	5.01	172	
1523								End pumping

APPENDIX H

MONITORING WELL GROUNDWATER SAMPLING LOGS

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO OU 4 IRA
JOB NUMBER: 8519.70
DATE: 6/18/96

SAMPLE LOCATION ID: OLD-13-09 (U4G00901, U4H00901
LOCATION ACTIVITY: START 1501 END 1732

FIELD QC DATA: ☒ FIELD DUPLICATE COLLECTED DUP ID U4G00901D / U4H00901D

WATER LEVEL / WELL DATA

WELL DEPTH: 13.92 FT ☒ MEASURED ☐ HISTORICAL
☐ TOP OF WELL ☒ TOP OF CASING
PROTECTIVE CASING STICK-UP (FROM GROUND): FT
PROTECTIVE CASING/WELL DIFF.: FT
WELL DIA. ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐

DEPTH TO WATER: 3.92 FT
HISTORICAL WELL DEPTH: . FT
WELL MATERIAL: ☒ PVC ☐ SS ☐

WELL INTEGRITY:

	YES	NO	N/A
PROT. CASING SECURE	☒	☐	☐
CONCRETE COLLAR INTACT	☒	☐	☐
WELL LOCKED	☒	☐	☐
OTHER:	☐	☐	☐

HEIGHT OF WATER COLUMN: 10 FT x ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__ IN) = 1.6 GAL/VOL

9 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM
WELL MOUTH: 45 PPM

PURGE DATA

Continued on page 2 of 2

PURGE VOLUME	@ 0 GAL	@ 1.2 GAL	@ 2 GAL	@ 3.5 GAL	@ 4 GAL
TEMP, DEG C	26	26	26.5	26	26
pH, UNITS	5.65	5.75	5.85	5.92	5.90
SPECIFIC CONDUCTIVITY umhos/cm	141	143	146	149	150
Turbidity / Dissolved O_2	18.14/2.2	18.15/2.4	17.36/2.2	13.32/2.6	10.05/2.2

SAMPLE OBSERVATIONS
☒ CLEAR
☐ COLORED
☐ CLOUDY
☐ TURBID
☐ ODOR
☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☒	☒	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BAILER
☐	☐	PVC/SILICON TUBING
☒	☒	TEFLON/SILICON TUBING
☐	☐	AIR LIFT
☐	☐	WATERRA
☐	☒	IN-LINE FILTER
☐	☐	PRESS/VAC FILTER

EQUIPMENT ID: ISCO # ___ KECK # ___ ☐ 2" ☐ 1" # ___ ☐ QED

DECON FLUIDS USED
☒ LIQUI-NOX
☒ DEIONIZED WATER
☐ HNO3/D.I. WATER
☒ POTABLE WATER
☐ TSP SOLUTION
☐ NONE
☐

WATER LEVEL EQUIP. USED
☒ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☐ KECK INTERFACE PROBE
☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA	U4G00901	NO	HCl	6 - 40 ml	☒	U4G00901 / U4G00901D
☒ Metals - unfiltered	U4G00901	NO	HNO_3	2 - 1 Liter	☒	U4G00901 / U4G00901D
☒ Metals - Filtered	U4H00901	yes	HNO_3	2 - 1 Liter	☒	U4H00901 / U4H00901D
☒ TSS, TDS, Total chlorides, Total solids Alkalinity, sulfate	U4G00901	NO	None	2 - 1 Liter	☒	U4G00901 / U4G00901D
☐	U4G00901	NO	H_2SO_4	2 - 100 ml	☐	
☒ TOC, Hardness					☒	U4G00901 / U4G00901D
☒ Total Sulfides	U4G00901	NO	ZnAc/NaOH	2 - 250 ml	☒	U4G00901 / U4G00901D
☐					☐	
☐					☐	
☐					☐	
☐					☐	
☐					☐	

NOTES

SIGNATURE: Max Harmes

RECEIVED BY:

HO 8/9/89

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT ______ JOB NUMBER ______ DATE ______

SAMPLE LOCATION ID: OLD-13-09

LOCATION ACTIVITY: START ______ END ______

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH ______ FT ☐ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☐ TOP OF CASING ☐ ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PROTECTIVE CASING/WELL DIFF. ______ FT

WELL DIA. ☐ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY:	YES	NO	N/A
PROT. CASING SECURE	☐	☐	☐
CONCRETE COLLAR INTACT	☐	☐	☐
WELL LOCKED	☐	☐	☐
OTHER: ______	☐	☐	☐

DEPTH TO WATER ______ FT

HISTORICAL WELL DEPTH ______ FT

WELL MATERIAL: ☐ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN ______ FT x ☐ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__IN) = ______ GAL/VOL ______ TOTAL GAL PURGED

AMBIENT AIR VOA ______ PPM

WELL MOUTH ______ PPM

PURGE DATA

PURGE VOLUME	@ 5 GAL	@ 6.4 GAL	@ 7.5 GAL	@ 8.3 GAL	@ 9 GAL
TEMP, DEG C	26	26	26	26	26
pH, UNITS	5.55	5.87	5.66	5.68	5.73
SPECIFIC CONDUCTIVITY umhos/cm	149	155	149	149	149
Turbidity / Dissolved O_2	9.15/2.1	8.28/2.2	7.84/2.0	7.07/2.2	7.50/2.0

SAMPLE OBSERVATIONS
☒ CLEAR
☐ COLORED ______
☐ CLOUDY ______
☐ TURBID ______
☐ ODOR ______
☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING / SAMPLING
☐ ☐ PERISTALTIC PUMP
☐ ☐ SUBMERSIBLE PUMP
☐ ☐ BAILER
☐ ☐ PVC/SILICON TUBING
☐ ☐ TEFLON/SILICON TUBING
☐ ☐ AIR LIFT
☐ ☐ WATERRA
☐ ☐ IN-LINE FILTER
☐ ☐ PRESS/VAC FILTER
☐ ☐ ______

EQUIPMENT ID
ISCO # ______
KECK # ______
☐ 2" ☐ 1" # ______
☐ QED
______

DECON FLUIDS USED
☐ LIQUI-NOX
☐ DEIONIZED WATER
☐ HNO3/D.I. WATER
☐ POTABLE WATER
☐ TSP SOLUTION
☐ NONE
☐ ______

WATER LEVEL EQUIP. USED
☐ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☐ KECK INTERFACE PROBE
☐ OTHER

NUMBER OF FILTERS USED ______

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___

NOTES

SIGNATURE: ______

MO 8/9/89

RECEIVED BY: ______

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO - OU4 IRA
JOB NUMBER: 8519.70
DATE: 6/19/96

SAMPLE LOCATION ID: OLD-13-10
LOCATION ACTIVITY: START 1008 END 1245

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH: 23.90 FT ☒ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☒ TOP OF CASING

PROTECTIVE CASING STICK-UP (FROM GROUND): ______ FT
PROTECTIVE CASING/WELL DIFF.: ______ FT

WELL DIA. ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY:	YES	NO	N/A
PROT. CASING SECURE	☒	☐	☐
CONCRETE COLLAR INTACT	☒	☐	☐
WELL LOCKED	☒	☐	☐
OTHER: ______	☐	☐	☐

DEPTH TO WATER: 3.34 FT
HISTORICAL WELL DEPTH: ______ FT

WELL MATERIAL: ☒ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN: 20.56 FT x ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__IN) = 3.36 GAL/VOL

10 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM
WELL MOUTH: 400 PPM

PURGE DATA

PURGE VOLUME	@ 2 GAL	@ 4.7 GAL	@ 7 GAL	@ 9 GAL	@ 10 GAL
TEMP, DEG C	25	25	25	25	25
pH, UNITS	5.42	5.39	5.36	5.41	5.43
SPECIFIC CONDUCTIVITY umhos/cm	109	110	109	109	110
~~Turbidity~~ / Dissolved O_2	1.2	2.3	1.9	1.4	1.5

SAMPLE OBSERVATIONS
☒ CLEAR
☐ COLORED ______
☐ CLOUDY ______
☐ TURBID ______
☐ ODOR ______
☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☒	☒	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BAILER
☐	☐	PVC/SILICON TUBING
☒	☒	TEFLON/SILICON TUBING
☐	☐	AIR LIFT
☐	☐	WATERRA
☐	☒	IN-LINE FILTER
☐	☐	PRESS/VAC FILTER
☐	☐	______

EQUIPMENT ID: ISCO # ______ KECK # ______ ☐ 2" ☐ 1" # ______ ☐ QED ______

DECON FLUIDS USED
☒ LIQUI-NOX
☒ DEIONIZED WATER
☐ HNO3/D.I. WATER
☒ POTABLE WATER
☐ TSP SOLUTION
☐ NONE
☐ ______

WATER LEVEL EQUIP. USED
☒ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☐ KECK INTERFACE PROBE
☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

Parameter	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA		NO	HCl	9-40ml	☒	U4G01001 / U4G01001MS / U4G01001MSD
☒ Metals		NO	HNO_3	3-1 liter	☒	U4G01001 / U4G01001MS / U4G01001MSD
☒ Metals		yes	HNO_3	3-1 liter	☒	U4H01001 / U4H01001MS / U4H01001MSD
☒ TOC, Hardness		NO	H_2SO_4	3-100ml	☒	U4G01001 / U4G01001MS / U4G01001MSD
☒ Total Sulfides		NO	ZnAc/NaOH	3-250ml	☒	U4G01001 / U4G01001MS / U4G01001MSD
☒ TSS, TDS, Total Chlorides ☐ Total Solids, Alkalinity, sulfate		NO	none	3-1 liter	☒	U4G01001 / U4G01001MS / U4G01001MSD

NOTES

SIGNATURE: [signature]

RECEIVED BY: ______

MO 8/9/89

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO OU4 IRA
JOB NUMBER: 8519.70
DATE: 6/20/96

SAMPLE LOCATION ID: OLD-13-11
LOCATION ACTIVITY: START 0923 END 1242

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH: 65.48 FT ☒ MEASURED ☐ HISTORICAL

☐ TOP OF WELL ☒ TOP OF CASING ☐ ______

PROTECTIVE CASING STICK-UP (FROM GROUND): ______ FT

PROTECTIVE CASING/WELL DIFF.: ______ FT

WELL DIA.: ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY:

	YES	NO	N/A
PROT. CASING SECURE	☒	☐	☐
CONCRETE COLLAR INTACT	☒	☐	☐
WELL LOCKED	☒	☐	☐
OTHER: ______	☐	☐	☐

DEPTH TO WATER: 2.76 FT

HISTORICAL WELL DEPTH: ______ FT

WELL MATERIAL: ☒ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN: 62.72 FT × ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__IN) = 10.24 GAL/VOL

11.5 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM

WELL MOUTH: 6 PPM

PURGE DATA

Contined on page 2 of 2

PURGE VOLUME	@ 1 GAL	@ 3.75 GAL	@ 5 GAL	@ 6.5 GAL	@ 7.5 GAL
TEMP, DEG C	25.5	25	25.5	25	25
pH, UNITS	10.48	9.81	9.86	9.81	9.73
SPECIFIC CONDUCTIVITY umhos/cm	468	399	390	378	385
Dissolved O_2	1.5	1.1	1.1	1.4	1.4

SAMPLE OBSERVATIONS
☒ CLEAR
☐ COLORED ______
☐ CLOUDY ______
☐ TURBID ______
☐ ODOR ______
☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☒	☒	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BAILER
☐	☐	PVC/SILICON TUBING
☒	☒	TEFLON/SILICON TUBING
☐	☐	AIR LIFT
☐	☐	WATERRA
☐	☒	IN-LINE FILTER
☐	☐	PRESS/VAC FILTER
☐	☐	______

EQUIPMENT ID: ISCO # ______ KECK # ______ ☐ 2" ☐ 1" # ______ ☐ QED ______

DECON FLUIDS USED:
☒ LIQUI-NOX
☒ DEIONIZED WATER
☐ HNO3/D.I. WATER
☒ POTABLE WATER
☐ TSP SOLUTION
☐ NONE
☐ ______

WATER LEVEL EQUIP. USED:
☒ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☐ KECK INTERFACE PROBE
☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

Parameter	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA		NO	HCl	3-40ml	☒	U4G01101
☒ Metals		NO	HNO_3	1liter	☒	U4G01101
☒ Metals		Yes	HNO_3	1liter	☒	U4G01101
☒ Toc, Hardness		NO	H_2SO_4	100ml	☒	U4G01101
☒ Total Sulfides		NO	ZnAc/NaOH	250ml	☒	U4G01101
☒ TSS, TDS, Total Chlorides ☐ Total Solids, Alkalinity, Sulfate		NO	none	1liter	☒	U4G01101

NOTES.

SIGNATURE: Mar Harris

RECEIVED BY: ______

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT ______ JOB NUMBER ______ DATE ______

SAMPLE LOCATION ID: OLD-13-11

LOCATION ACTIVITY: START ______ END ______

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH ______ FT ☐ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☐ TOP OF CASING ☐ ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PROTECTIVE CASING/WELL DIFF. ______ FT

WELL DIA. ☐ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY: YES / NO / N/A
- PROT. CASING SECURE ☐ ☐ ☐
- CONCRETE COLLAR INTACT ☐ ☐ ☐
- WELL LOCKED ☐ ☐ ☐
- OTHER: ______ ☐ ☐ ☐

DEPTH TO WATER ______ FT

HISTORICAL WELL DEPTH ______ FT

WELL MATERIAL: ☐ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN ______ FT x ☐ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__IN) = ______ GAL/VOL ______ TOTAL GAL PURGED

AMBIENT AIR VOA ______ PPM

WELL MOUTH ______ PPM

PURGE DATA

PURGE VOLUME	@ 8.5 GAL	@ 9.4 GAL	@ 10.5 GAL	@ 11.2 GAL	@ ___ GAL
TEMP, DEG C	25.5	25.5	26	26	
pH, UNITS	9.67	9.90	9.61	9.72	
SPECIFIC CONDUCTIVITY umhos/cm	370	420	390	390	
Dissolved O_2	1.6	1.4	1.8	1.8	

SAMPLE OBSERVATIONS
- ☒ CLEAR
- ☐ COLORED ______
- ☐ CLOUDY ______
- ☐ TURBID ______
- ☐ ODOR ______
- ☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING / SAMPLING
- ☐ ☐ PERISTALTIC PUMP
- ☐ ☐ SUBMERSIBLE PUMP
- ☐ ☐ BAILER
- ☐ ☐ PVC/SILICON TUBING
- ☐ ☐ TEFLON/SILICON TUBING
- ☐ ☐ AIR LIFT
- ☐ ☐ WATERRA
- ☐ IN-LINE FILTER
- ☐ PRESS/VAC FILTER
- ☐ ☐ ______

EQUIPMENT ID
- ISCO # ______
- KECK # ______
- ☐ 2" ☐ 1" # ______
- ☐ QED
- ______

DECON FLUIDS USED
- ☐ LIQUI-NOX
- ☐ DEIONIZED WATER
- ☐ HNO3/D.I. WATER
- ☐ POTABLE WATER
- ☐ TSP SOLUTION
- ☐ NONE
- ☐ ______

WATER LEVEL EQUIP. USED
- ☐ ELECTRIC COND. PROBE
- ☐ FLOAT ACTIVATED
- ☐ KECK INTERFACE PROBE
- ☐ OTHER

NUMBER OF FILTERS USED ______

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___

NOTES

SIGNATURE: ______

MO 8/9/89

RECEIVED BY: ______

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO OU4 IRA
JOB NUMBER: 8519.70
DATE: 6/21/96

SAMPLE LOCATION ID: OLD-13-12
LOCATION ACTIVITY: START 1249 END 1440

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ____

WATER LEVEL / WELL DATA

WELL DEPTH: 14.18 FT — ☒ MEASURED ☐ HISTORICAL — ☐ TOP OF WELL ☒ TOP OF CASING

PROTECTIVE CASING STICK-UP (FROM GROUND): ____ FT
PROTECTIVE CASING/WELL DIFF.: ____ FT

WELL DIA.: ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ____

WELL INTEGRITY: (YES / NO / N/A)
- PROT. CASING SECURE: ☒ YES
- CONCRETE COLLAR INTACT: ☒ YES
- WELL LOCKED: ☒ YES
- OTHER: ____

DEPTH TO WATER: 3.26 FT
HISTORICAL WELL DEPTH: ____ FT

WELL MATERIAL: ☒ PVC ☐ SS ☐ ____

HEIGHT OF WATER COLUMN: 10.92 FT × ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__ IN) = 1.75 GAL/VOL

7 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM
WELL MOUTH: 5 PPM

PURGE DATA

PURGE VOLUME	@ 2.5 GAL	@ 5 GAL	@ 6 GAL	@ 7 GAL	@ ___ GAL
TEMP, DEG C	25.5	24	24	24	
pH, UNITS	5.37	5.56	5.56	5.50	
SPECIFIC CONDUCTIVITY umhos/cm	81	80	82	84	
Dissolved O_2	1.6	1.5	1.5	1.4	

SAMPLE OBSERVATIONS:
- ☒ CLEAR
- ☐ COLORED ____
- ☐ CLOUDY ____
- ☐ TURBID ____
- ☐ ODOR ____
- ☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☒	☒	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BAILER
☐	☐	PVC/SILICON TUBING
☒	☒	TEFLON/SILICON TUBING
☐	☐	AIR LIFT
☐	☐	WATERRA
	☒	IN-LINE FILTER
☐	☐	PRESS/VAC FILTER

EQUIPMENT ID: ISCO # ____ KECK # ____ ☐ 2" ☐ 1" # ____ ☐ QED

DECON FLUIDS USED:
- ☒ LIQUI-NOX
- ☒ DEIONIZED WATER
- ☐ HNO3/D.I. WATER
- ☒ POTABLE WATER
- ☐ TSP SOLUTION
- ☐ NONE

WATER LEVEL EQUIP. USED:
- ☒ ELECTRIC COND. PROBE
- ☐ FLOAT ACTIVATED
- ☐ KECK INTERFACE PROBE
- ☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA		NO	HCl	3-40ml	☒	U4G01201
☒ Metals		NO	HNO_3	1 liter	☒	U4G01201
☒ Metals		Yes	HNO_3	1 liter	☒	U4G01201
☒ Toc, Hardness		NO	H_2SO_4	100ml	☒	U4G01201
☒ Total Sulfides		NO	ZnAc/NaOH	250ml	☒	U4G01201
☒ TSS, TDS, Total chlorides ☐ Total Solids, Alkalinity, Sulfate		NO	none	1 liter	☒	U4G01201

NOTES

SIGNATURE: [signature]

RECEIVED BY: ____

MO 8/9/89

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO OU4 IRA
JOB NUMBER: ~~6/24~~ 8519.70
DATE: 6/24/96

SAMPLE LOCATION ID: OLD-13-13
LOCATION ACTIVITY: START 1420 END 1629

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH: 23.91 FT ☒ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☒ TOP OF CASING

PROTECTIVE CASING STICK-UP (FROM GROUND): ______ FT
PROTECTIVE CASING/WELL DIFF.: ______ FT

WELL DIA. ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY: YES NO N/A
PROT. CASING SECURE ☒ ☐ ☐
CONCRETE COLLAR INTACT ☒ ☐ ☐
WELL LOCKED ☒ ☐ ☐
OTHER: ______ ☐ ☐ ☐

DEPTH TO WATER: 4.12 FT
HISTORICAL WELL DEPTH: - FT

WELL MATERIAL: ☒ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN: 19.79 FT x ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__ IN) = 3.17 GAL/VOL

5 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM
WELL MOUTH: 1 PPM

PURGE DATA

PURGE VOLUME	@ 2.5 GAL	@ 3.5 GAL	@ 4.5 GAL	@ 5 GAL	@ ___ GAL
TEMP, DEG C	27	27	27	27	
pH, UNITS	10.48	10.15	9.78	9.66	
SPECIFIC CONDUCTIVITY umhos/cm	370	340	330	335	
Dissolved O2	2.4	2.0	1.8	1.5	

SAMPLE OBSERVATIONS
☒ CLEAR
☐ COLORED ______
☐ CLOUDY ______
☐ TURBID ______
☐ ODOR ______
☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING		EQUIPMENT ID
☒	☒	PERISTALTIC PUMP	ISCO # ______
☐	☐	SUBMERSIBLE PUMP	KECK # ______
☐	☐	BAILER	☐ 2" ☐ 1" # ______
☐	☐	PVC/SILICON TUBING	
☒	☒	TEFLON/SILICON TUBING	
☐	☐	AIR LIFT	
☐	☐	WATERRA	
	☒	IN-LINE FILTER	☐ QED
	☐	PRESS/VAC FILTER	
☐	☐	______	______

DECON FLUIDS USED
☒ LIQUI-NOX
☒ DEIONIZED WATER
☐ HNO3/D.I. WATER
☒ POTABLE WATER
☐ TSP SOLUTION
☐ NONE
☐ ______

WATER LEVEL EQUIP. USED
☒ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☐ KECK INTERFACE PROBE
☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA		NO	HCl	3-40ml	☒	U4601301/ / /
☒ Metals		NO	HNO_3	1 liter	☒	U4601301/ / /
☒ Metals		Yes	HNO_3	1 liter	☒	U4601301/ / /
☒ Toc, Hardness		NO	H_2SO_4	100ml	☒	U4601301/ / /
☒ Total Sulfides		NO	ZnAc/NaOH	250ml	☒	U4601301/ / /
☒ TSS, TDS, Total chlorides, Total Solids, Alkalinity, Sulfate		NO	none	1 liter	☒	U4601301/ / /

NOTES.

SIGNATURE: [signature]

RECEIVED BY: ______

MO 2/9/89

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: NTC ORLANDO - OU4 IRA
JOB NUMBER: 8519.70
DATE: 6/21/96

SAMPLE LOCATION ID: OLD-13-14
LOCATION ACTIVITY: START 0939 END 1237

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH: 65.43 FT ☒ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☒ TOP OF CASING

PROTECTIVE CASING STICK-UP (FROM GROUND): ______ FT

PROTECTIVE CASING/WELL DIFF.: ______ FT

DEPTH TO WATER: 3.97 FT

HISTORICAL WELL DEPTH: ______ FT

WELL DIA. ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL MATERIAL: ☒ PVC ☐ SS ☐ ______

WELL INTEGRITY:	YES	NO	N/A
PROT. CASING SECURE	☒	☐	☐
CONCRETE COLLAR INTACT	☒	☐	☐
WELL LOCKED	☒	☐	☐
OTHER: ______	☐	☐	☐

HEIGHT OF WATER COLUMN: 61.46 FT x ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__ IN) = 9.83 GAL/VOL

15.5 TOTAL GAL PURGED

AMBIENT AIR VOA: 0 PPM

WELL MOUTH: 2 PPM

PURGE DATA

PURGE VOLUME	@ 2 GAL	@ 4 GAL	@ 6 GAL	@ 10 GAL	@ 12 GAL
TEMP, DEG C	25	25	25	25	25
pH, UNITS	5.60	5.47	5.17	5.07	5.31
SPECIFIC CONDUCTIVITY umhos/cm	194	190	181	175	179
Dissolved O_2	1.8	1.6	1.3	1.4	1.3

SAMPLE OBSERVATIONS
- ☒ CLEAR
- ☐ COLORED ______
- ☐ CLOUDY ______
- ☐ TURBID ______
- ☐ ODOR ______
- ☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☒	☒	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BAILER
☐	☐	PVC/SILICON TUBING
☒	☒	TEFLON/SILICON TUBING
☐	☐	AIR LIFT
☐	☐	WATERRA
	☒	IN-LINE FILTER ☐ QED
☐	☐	PRESS/VAC FILTER

EQUIPMENT ID: ISCO # ______ KECK # ______ ☐ 2" ☐ 1" # ______

DECON FLUIDS USED
- ☒ LIQUI-NOX
- ☒ DEIONIZED WATER
- ☐ HNO3/D.I. WATER
- ☒ POTABLE WATER
- ☐ TSP SOLUTION
- ☐ NONE
- ☐ ______

WATER LEVEL EQUIP. USED
- ☒ ELECTRIC COND. PROBE
- ☐ FLOAT ACTIVATED
- ☐ KECK INTERFACE PROBE
- ☐ OTHER

NUMBER OF FILTERS USED: 1

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ VOA		NO	HCl	3-40ml	☒	U46014 01
☒ Metals		NO	HNO_3	1 liter	☒	U46014 01
☒ Metals		Yes	HNO_3	1 liter	☒	U46014 01
☒ Toc, Hardness		NO	H_2SO_4	100ml	☒	U46014 01
☒ Total Sulfides		NO	ZnAc/NaOH	250ml	☒	U46014 01
☒ TSS, TDS, Total Chlorides ☐ Total Solids, Alkalinity, Sulfate		NO	none	1 liter	☒	U46014 01

NOTES.

SIGNATURE: [signature]

RECEIVED BY: ______

MD 8/9/89

ABB ENVIRONMENTAL SERVICES, INC.

FIELD DATA RECORD – GROUNDWATER

PROJECT: ______ JOB NUMBER: ______ DATE: ______

SAMPLE LOCATION ID: OLD-13-14

LOCATION ACTIVITY: START ______ END ______

FIELD QC DATA: ☐ FIELD DUPLICATE COLLECTED DUP ID ______

WATER LEVEL / WELL DATA

WELL DEPTH ______ FT ☐ MEASURED ☐ HISTORICAL ☐ TOP OF WELL ☐ TOP OF CASING ☐ ______

PROTECTIVE CASING STICK-UP (FROM GROUND) ______ FT

PROTECTIVE CASING/WELL DIFF. ______ FT

WELL DIA. ☐ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ ______

WELL INTEGRITY:	YES	NO	N/A
PROT. CASING SECURE	☐	☐	☐
CONCRETE COLLAR INTACT	☐	☐	☐
WELL LOCKED	☐	☐	☐
OTHER: ______	☐	☐	☐

DEPTH TO WATER ______ FT

HISTORICAL WELL DEPTH ______ FT

WELL MATERIAL: ☐ PVC ☐ SS ☐ ______

HEIGHT OF WATER COLUMN ______ FT X ☐ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN)= ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__IN)

______ GAL/VOL

______ TOTAL GAL PURGED

AMBIENT AIR VOA ______ PPM

WELL MOUTH ______ PPM

PURGE DATA

PURGE VOLUME	@ 13.5 GAL	@ 14 GAL	@ 14.5 GAL	@ 15 GAL	@ 15.5 GAL
TEMP, DEG C	26	26	26	26	25.5
pH, UNITS	5.04	5.41	5.25	5.13	5.17
SPECIFIC CONDUCTIVITY umhos/cm	176	178	179	175	179
Dissolved O2	1.5	1.6	1.7	1.6	1.8

SAMPLE OBSERVATIONS
- ☒ CLEAR
- ☐ COLORED ______
- ☐ CLOUDY ______
- ☐ TURBID ______
- ☐ ODOR ______
- ☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

PURGING / SAMPLING
- ☐ ☐ PERISTALTIC PUMP
- ☐ ☐ SUBMERSIBLE PUMP
- ☐ ☐ BAILER
- ☐ ☐ PVC/SILICON TUBING
- ☐ ☐ TEFLON/SILICON TUBING
- ☐ ☐ AIR LIFT
- ☐ ☐ WATERRA
- ☐ IN-LINE FILTER
- ☐ ☐ PRESS/VAC FILTER
- ______

EQUIPMENT ID
- ISCO # ______
- KECK # ______
- ☐ 2" ☐ 1" # ______
- ☐ QED
- ______

DECON FLUIDS USED
- ☐ LIQUI-NOX
- ☐ DEIONIZED WATER
- ☐ HNO3/D.I. WATER
- ☐ POTABLE WATER
- ☐ TSP SOLUTION
- ☐ NONE
- ☐ ______

WATER LEVEL EQUIP. USED
- ☐ ELECTRIC COND. PROBE
- ☐ FLOAT ACTIVATED
- ☐ KECK INTERFACE PROBE
- ☐ OTHER

NUMBER OF FILTERS USED ______

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___
☐					☐	___/___/___/___

NOTES

SIGNATURE: ______

RECEIVED BY: ______

HO 8/9/89

APPENDIX I

MONITORING WELL SAMPLING ANALYTICAL REPORTS

Table . *Summary of Positive Detections in Groundwater Analytical Results*
June 1996 Sampling

Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	01	U4H01101		U4G01201		U4H01201		U4G01301		U4H01301		U4G01401	
Lab ID					02	MB209003		MB209006		MB209007		MB226002		MB226003		MB209004	
Sampling Date						6/20/96		6/21/96		6/21/96		6/24/96		6/24/96		6/21/96	
Volatile Organics, ug/L																	
cis-1,2-Dichloroethene		70	70	61 n		NA				NA		**130**		NA			
Tetrachloroethene		3	5	1.1 c		NA				NA				NA		**91**	
Trichloroethene		3	5	1.6 c		NA				NA		**35**		NA			
Inorganics, ug/L																	
Aluminum	4,067	200 [3]	ND	37,000 n		1450		364		199	B	2100		2400		1200	
Arsenic	5	50 [5]	50	0.045 c/11 n	BW												
Barium	31.4	2,000 [5]	2,000	2,600 n	B	18.4	B	4	B	3.8	B	35.9	B	35.7	B	22.8	B
Beryllium		4 [5]	4	0.016 c													
Calcium	36,830	ND	ND	1,000,000		55000		9380		9220		77400		79900		5550	
Chromium	7.8	100 [5]	100	180 n	B	4.8	B	4.5	B	5.4	B	7.2	B	7.1	B	8.9	B
Cobalt		ND	ND	2,200 n	B					2.8	B						
Copper	5.4	1,000 [3]	ND	1,500 n	B	9	B	4.4	B	3.8	B	32.4		10.5	B	6.9	B
Iron	1,227	300 [3]	ND	11,000 n		69.6	B	306		236		78.6	B	59.9	B	995	
Lead	4	15 [5]	15	15												1.2	B
Magnesium	4,560	ND	ND	118,807	B	1860	B	2250	B	2290	B	1610	B	1420	B	3660	B
Manganese	17	50 [3]	ND	840 n	B	3	B	11	B	11	B	8.2	B	6.3	B	24.1	
Mercury	0.12	2 [5]	2	11 c	B	0.15	B	0.15	B	0.11	B	0.08	B	0.13	B	0.18	B
Nickel		100 [5]	100	730 n				5.9	B	5.7	B	18.4	B			7.7	B
Potassium	5,400	ND	ND	297,016	B	2890	B					5820		5610		2240	B
Selenium	10	50 [5]	ND	180 n	B	1.4	B			4.2	B			3.2	B		
Silver		100 [3]	ND	180 n													
Sodium	18,222	160,000 [5]	ND	396,022		26500		4580	B	4390	B	7080		6790		14800	
Thallium	3.8	2 [5]	2	2.9 n													
Vanadium	21	49 [4]	ND	260 n	B	8.9	B					10	B	11.2	B	3.3	B
Zinc	4	5,000 [3]	ND	11,000 n	B	4.8	B	6.4	B	7.2	B	15.8	B	8.6	B	10.2	B

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Table . Summary of Positive Detections in Groundwater Analytical Results
June 1996 Sampling

Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	U4G00901	U4H00901	U4G00901D	U4H00901D	U4G01001	U4H01001	U4G01
Lab ID					MB174003	MB174004	MB174005	MB174006	MB187002	MB187003	MB209
Sampling Date					6/18/96	6/18/96	6/18/96	6/18/96	6/19/96	6/19/96	6/20/9
Volatile Organics, ug/L											
cis-1,2-Dichloroethene		70	70	61 n	**830**	NA	**850**	NA	**140**	NA	
Tetrachloroethene		3	5	1.1 c		NA		NA		NA	
Trichloroethene		3	5	1.6 c	**500**	NA	**680**	NA	**76**	NA	
Inorganics, ug/L											
Aluminum	4,067	200 [3]	ND	37,000 n	406	274	410	271	169 B	106 B	1380
Arsenic	5	50 [5]	50	0.045 c/11 n							2
Barium	31.4	2,000 [5]	2,000	2,600 n	4.4 B	2.7 B	4.6 B	2.7 B	8.3 B	6.3 B	18
Beryllium		4 [5]	4	0.016 c	0.23 B		0.16 B		0.26 B		
Calcium	36,830	ND	ND	1,000,000	9430	7830	9330	8040	2970 B	3170 B	52500
Chromium	7.8	100 [5]	100	180 n	6.5 B	4.2 B	5.3 B	3.7 B	6.1 B		10
Cobalt		ND	ND	2,200 n					2.7 B		3
Copper	5.4	1,000 [3]	ND	1,500 n	13.5 B		3.3 B		14.4 B		4.6
Iron	1,227	300 [3]	ND	11,000 n	184	161	178	166	755	716	106
Lead	4	15 [5]	15	15		4.4		5.5		3.4	
Magnesium	4,560	ND	ND	118,807	2070 B	1830 B	2050 B	1870 B	846 B	856 B	1890
Manganese	17	50 [3]	ND	840 n	4 B	3.5 B	3.9 B	3.6 B	16.6	16.2	3.2
Mercury	0.12	2 [5]	2	11 c	0.19 B	0.14 B	0.18 B	0.1 B	0.17 B	0.11 B	0.15
Nickel		100 [5]	100	730 n							
Potassium	5,400	ND	ND	297,016	2360 B	2280 B	2350 B	2100 B	914 B		2650
Selenium	10	50 [5]	ND	180 n		1.4 B					1.5
Silver		100 [3]	ND	180 n					2.5 B		
Sodium	18,222	160,000 [5]	ND	396,022	14500	13400	14300	13400	13600	13200	22700
Thallium	3.8	2 [5]	2	2.9 n				0.95 BN			
Vanadium	21	49 [4]	ND	260 n	2.5 B		2.4 B		3.6 B		8.8
Zinc	4	5,000 [3]	ND	11,000 n	5.4 B	3.6 B	3.8 B	4.3 B	5.5 B	6.2 B	2.3

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DATA HAS NOT BEEN SUBJECTED TO INDEPENDENT DATA VALIDATION

Table . Summary of Positive Detections in Groundwater Analytical Results
June 1996 Sampling

Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	U4G00901	U4H00901	U4G00901D	U4H00901D	U4G01001	U4H01001	U4G01
Lab ID					MB174003	MB174004	MB174005	MB174006	MB187002	MB187003	MB209
Sampling Date					6/18/96	6/18/96	6/18/96	6/18/96	6/19/96	6/19/96	6/20/9
Wet Chemistry, mg/L											
Alkalinity as CaCO3	ND	ND	ND	ND	20	NA	30	NA	8	NA	130
Chloride	ND	ND	ND	ND	13.1		13.1		18		85.8
Hardness as CaCO3	ND	ND	ND	ND	44	NA	34	NA	12	NA	166
Sulfate	ND	ND	ND	ND	10.2	NA	10.3	NA	5.3	NA	21.4
Sulfide	ND	ND	ND	ND	0.2	NA		NA	0.3	NA	0.2
Total Dissolved Solids	ND	ND	ND	ND	48	NA	44	NA	23	NA	247
Total Organic Carbon	ND	ND	ND	ND	5.4	NA	5.4	NA	6.2	NA	18.4
Total Solids	ND	ND	ND	ND	78	NA	83	NA	66	NA	273
Total Suspended Solids	ND	ND	ND	ND		NA		NA		NA	

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Table . Summary of Positive Detections in Groundwater Analytical Results
June 1996 Sampling

Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	01	U4H01101	U4G01201	U4H01201	U4G01301	U4H01301	U4G01401
Lab ID					02	MB209003	MB209006	MB209007	MB226002	MB226003	MB209004
Sampling Date						6/20/96	6/21/96	6/21/96	6/24/96	6/24/96	6/21/96
Wet Chemistry, mg/L											
Alkalinity as CaCO3	ND	ND	ND	ND		NA	36	NA	253	NA	12
Chloride	ND	ND	ND	ND			2.4		4.1		64.8
Hardness as CaCO3	ND	ND	ND	ND		NA	32	NA	276	NA	22
Sulfate	ND	ND	ND	ND		NA	5.1	NA	13.2	NA	13.9
Sulfide	ND	ND	ND	ND		NA	0.2	NA		NA	0.4
Total Dissolved Solids	ND	ND	ND	ND		NA	53	NA	271	NA	90
Total Organic Carbon	ND	ND	ND	ND		NA	4.2	NA	30.3	NA	4
Total Solids	ND	ND	ND	ND		NA	64	NA	290	NA	131
Total Suspended Solids	ND	ND	ND	ND		NA		NA	14	NA	38

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Table . Summary of Positive Detections in Groundwater Analytical Results
June 1996 Sampling

Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background [1]	FDEPG	FEDMCL	RBC [2] for Tap Water	U4H01401	
Lab ID					MB209005	
Sampling Date					6/21/96	
Volatile Organics, ug/L						
cis-1,2-Dichloroethene		70	70	61 n	NA	
Tetrachloroethene		3	5	1.1 c	NA	
Trichloroethene		3	5	1.6 c	NA	
Inorganics, ug/L						
Aluminum	4,067	200 [3]	ND	37,000 n	194	B
Arsenic	5	50 [5]	50	0.045 c/11 n	6.5	B
Barium	31.4	2,000 [5]	2,000	2,600 n	15.4	B
Beryllium		4 [5]	4	0.016 c		
Calcium	36,830	ND	ND	1,000,000	5310	
Chromium	7.8	100 [5]	100	180 n	4.2	B
Cobalt		ND	ND	2,200 n		
Copper	5.4	1,000 [3]	ND	1,500 n		
Iron	1,227	300 [3]	ND	11,000 n	806	
Lead	4	15 [5]	15	15		
Magnesium	4,560	ND	ND	118,807	3540	B
Manganese	17	50 [3]	ND	840 n	23.6	
Mercury	0.12	2 [5]	2	11 c	0.12	B
Nickel		100 [5]	100	730 n		
Potassium	5,400	ND	ND	297,016	2010	B
Selenium	10	50 [5]	ND	180 n		
Silver		100 [3]	ND	180 n		
Sodium	18,222	160,000 [5]	ND	396,022	15300	
Thallium	3.8	2 [5]	2	2.9 n		
Vanadium	21	49 [4]	ND	260 n		
Zinc	4	5,000 [3]	ND	11,000 n	10.2	B

DRAFT
DATA HAS NOT BEEN SUBJECTED TO INDEPENDENT DATA VALIDATION

Table . Summary of Positive Detections in Groundwater Analytical Results
June 1996 Sampling

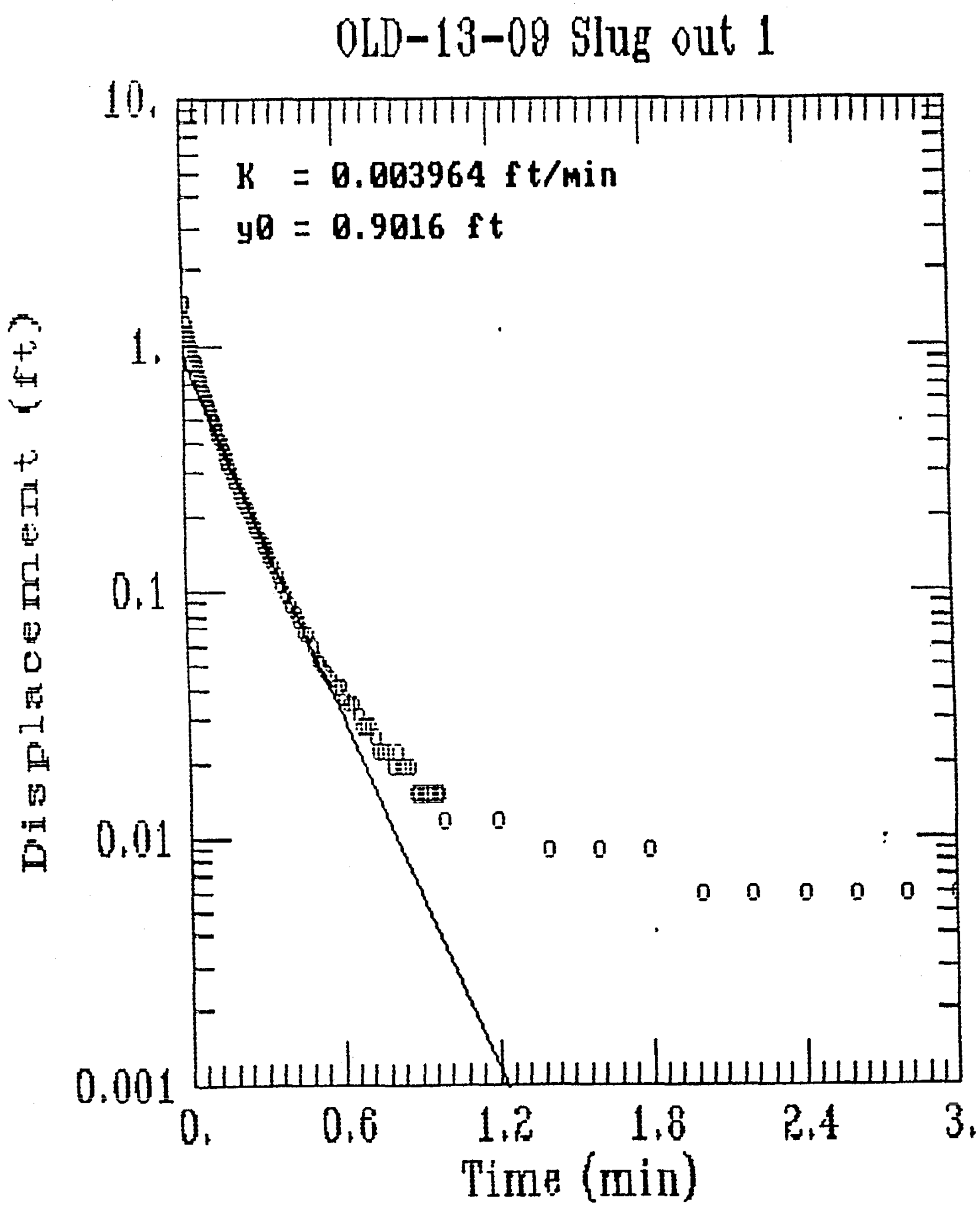
Interim Remedial Action
Operable Unit 4
Naval Training Center, Orlando
Orlando, FL

Sample ID	Background[1]	FDEPG	FEDMCL	RBC[2] for Tap Water	U4H01401
Lab ID					MB209005
Sampling Date					6/21/96
Wet Chemistry, mg/L					
Alkalinity as CaCO3	ND	ND	ND	ND	NA
Chloride	ND	ND	ND	ND	
Hardness as CaCO3	ND	ND	ND	ND	NA
Sulfate	ND	ND	ND	ND	NA
Sulfide	ND	ND	ND	ND	NA
Total Dissolved Solids	ND	ND	ND	ND	NA
Total Organic Carbon	ND	ND	ND	ND	NA
Total Solids	ND	ND	ND	ND	NA
Total Suspended Solids	ND	ND	ND	ND	NA

DRAFT
DATA HAS NOT BEEN SUBJECTED TO INDEPENDENT DATA VALIDATION

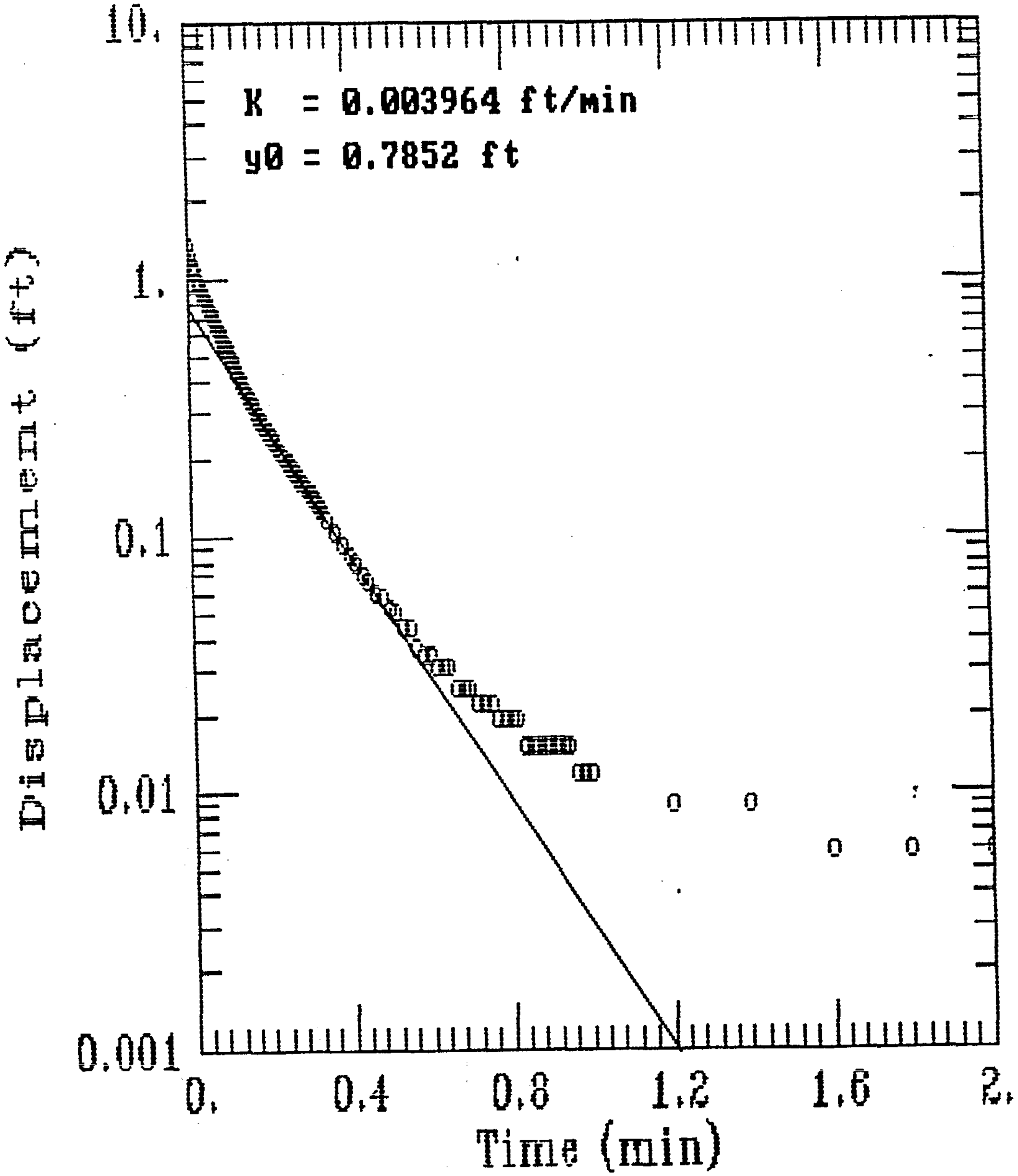
APPENDIX J

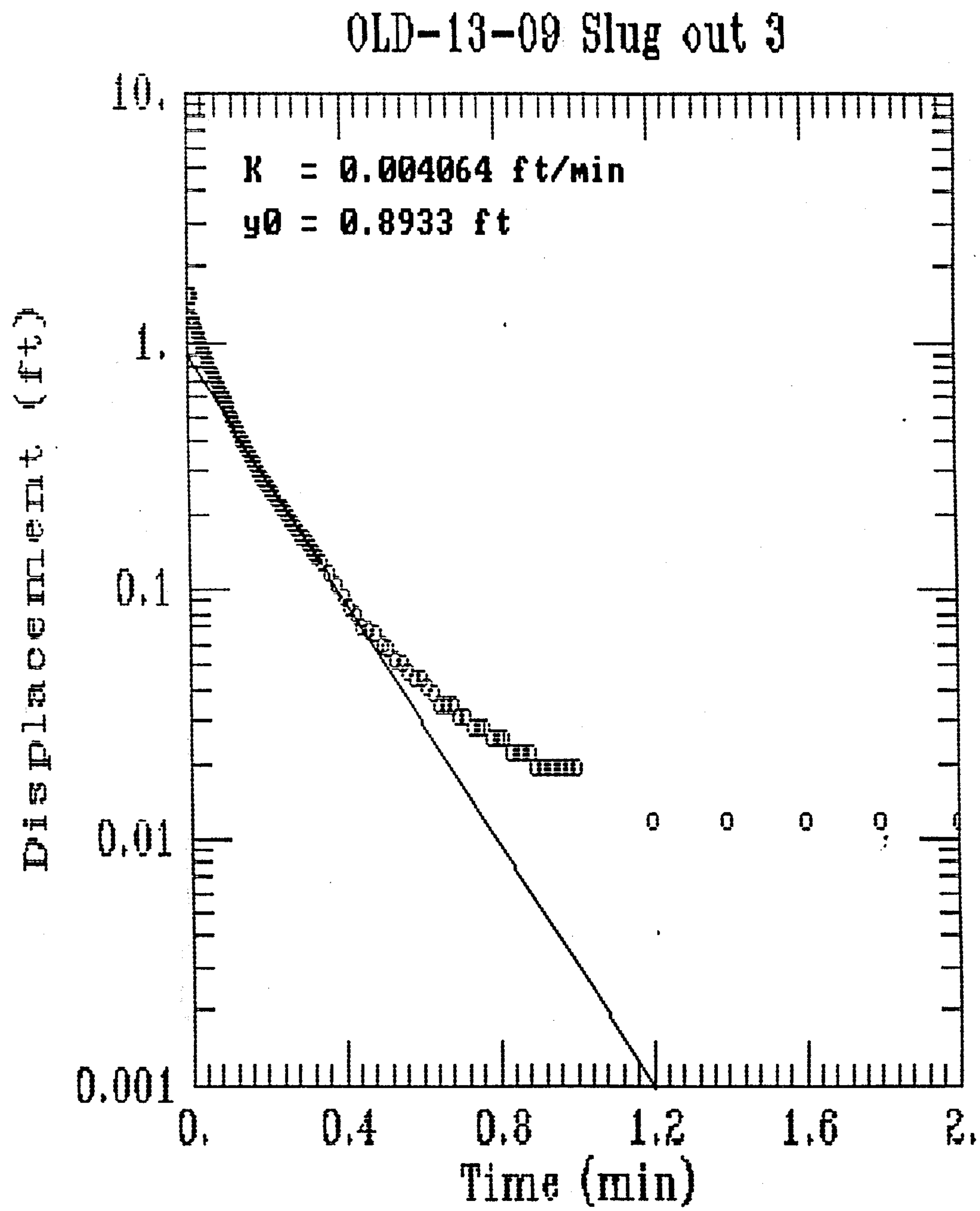
SLUG TEST GRAPHS

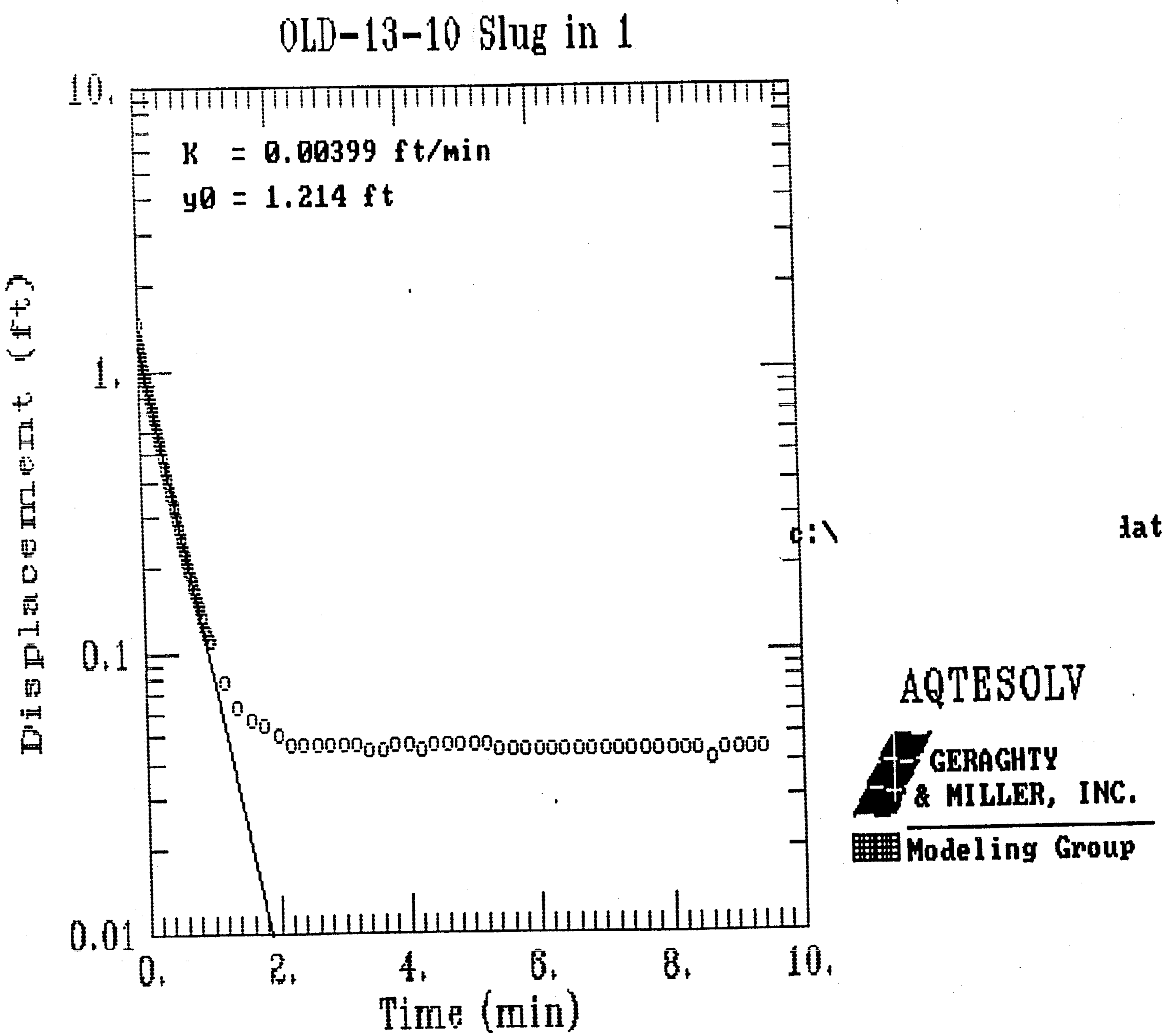


OLD-13-09 Slug out 1
K = 0.003964 ft/min
y0 = 0.9016 ft
Displacement (ft)
10.
1.
0.1
0.01
0.001
0.
0.6
1.2
1.8
2.4
3.
Time (min)

OLD-13-09 Slug out 2

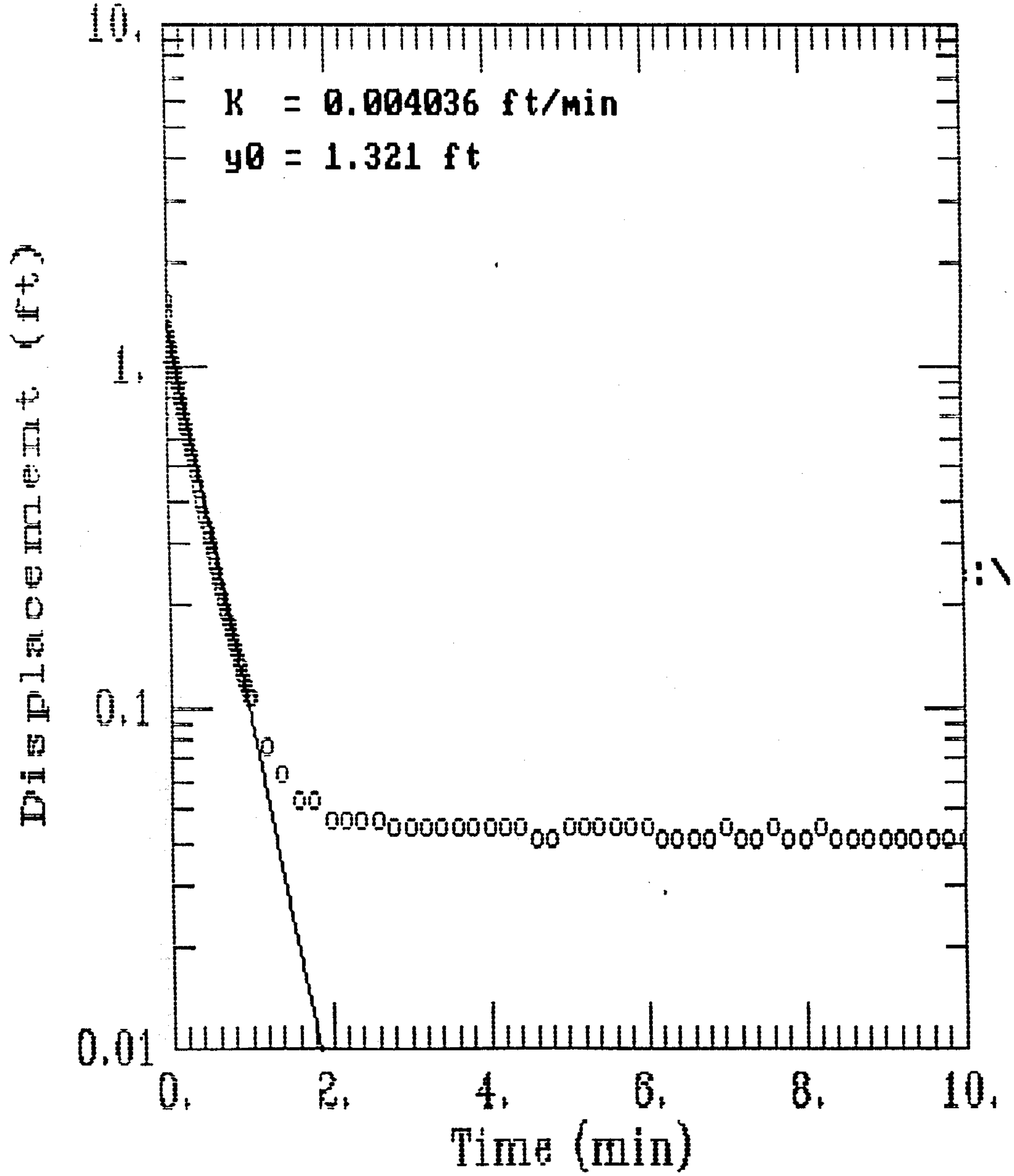



OLD-13-09 Slug out 3
K = 0.004064 ft/min
y0 = 0.8933 ft
Displacement (ft)
Time (min)
10.
1.
0.1
0.01
0.001
0.
0.4
0.8
1.2
1.6
2.



OLD-13-10 Slug in 1
K = 0.00399 ft/min
y0 = 1.214 ft
Displacement (ft)
Time (min)
10.
1.
0.1
0.01
0.
2.
4.
6.
8.
10.
c:\
dat
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

OLD-13-10 Slug in 2



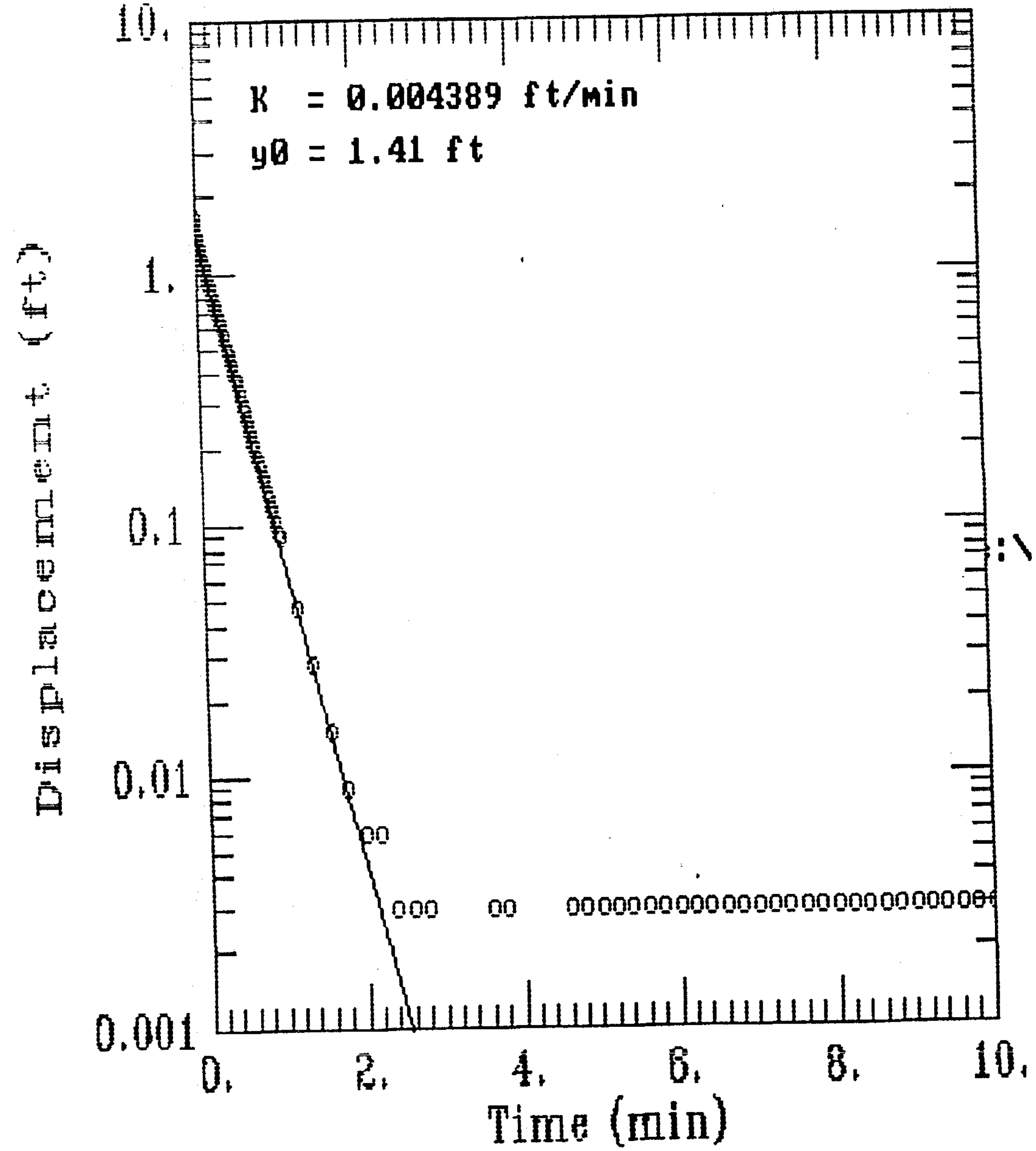
:\ dat

AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

OLD-13-10 Slug out 1

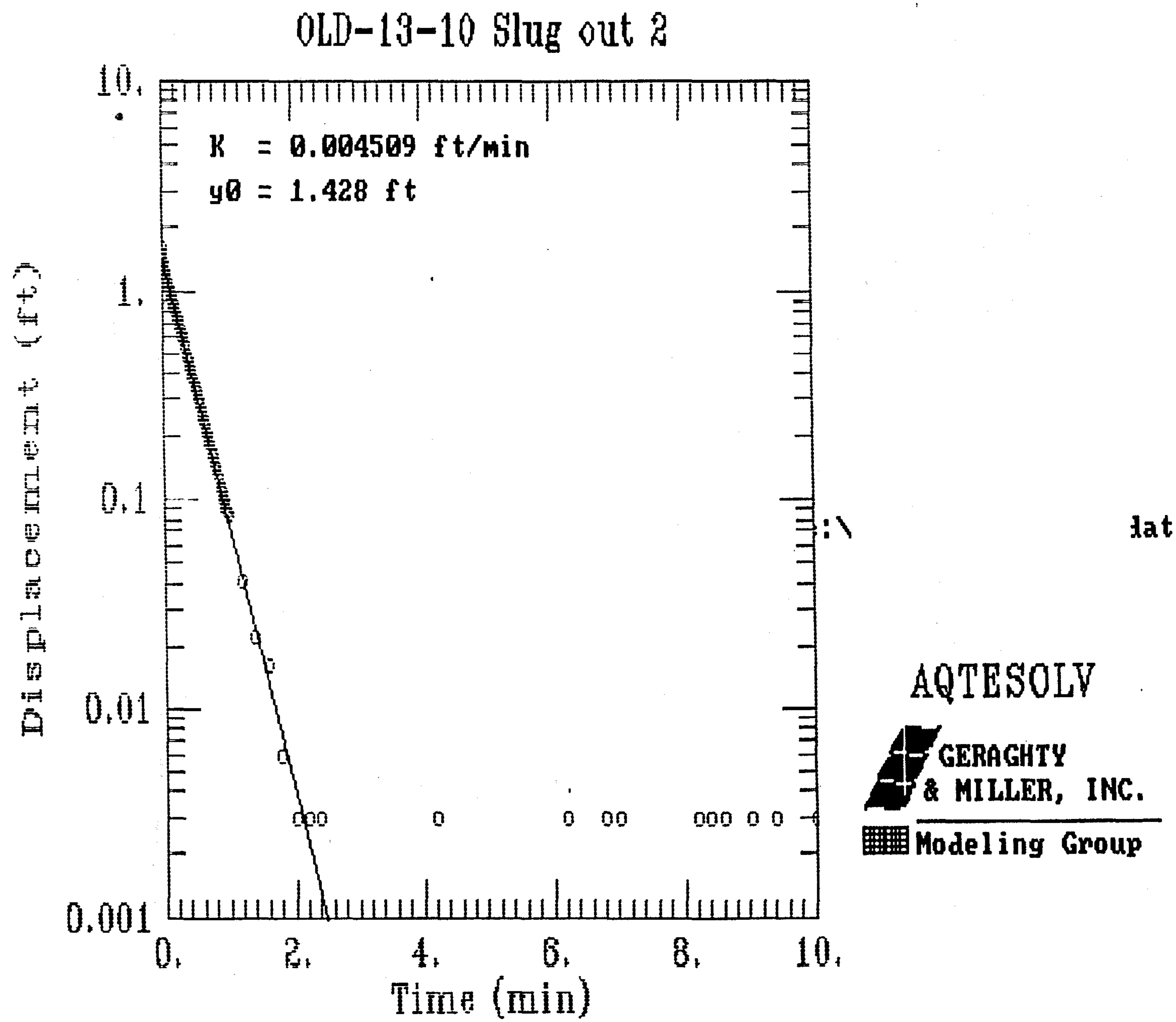


:\ dat

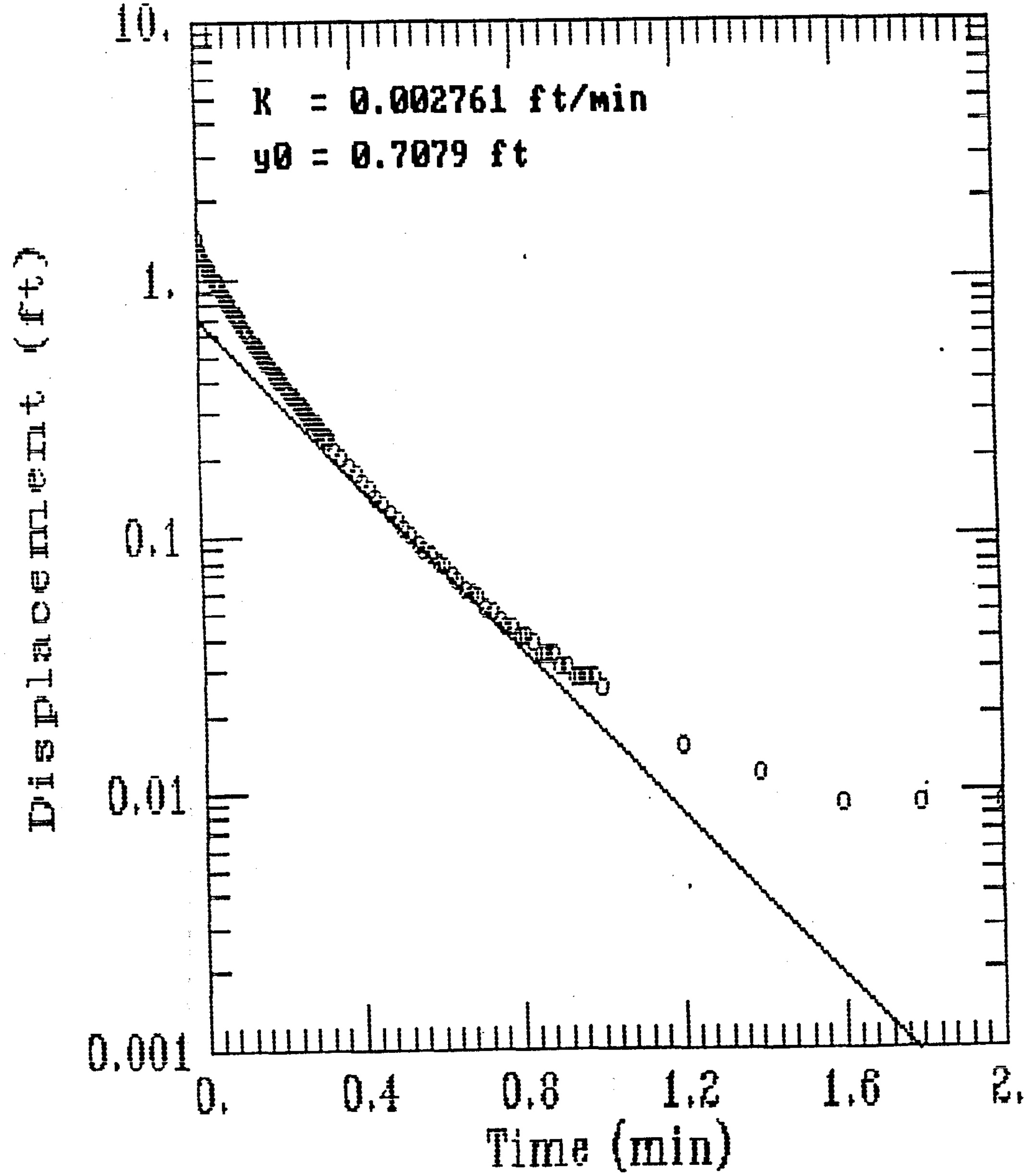
AQTESOLV

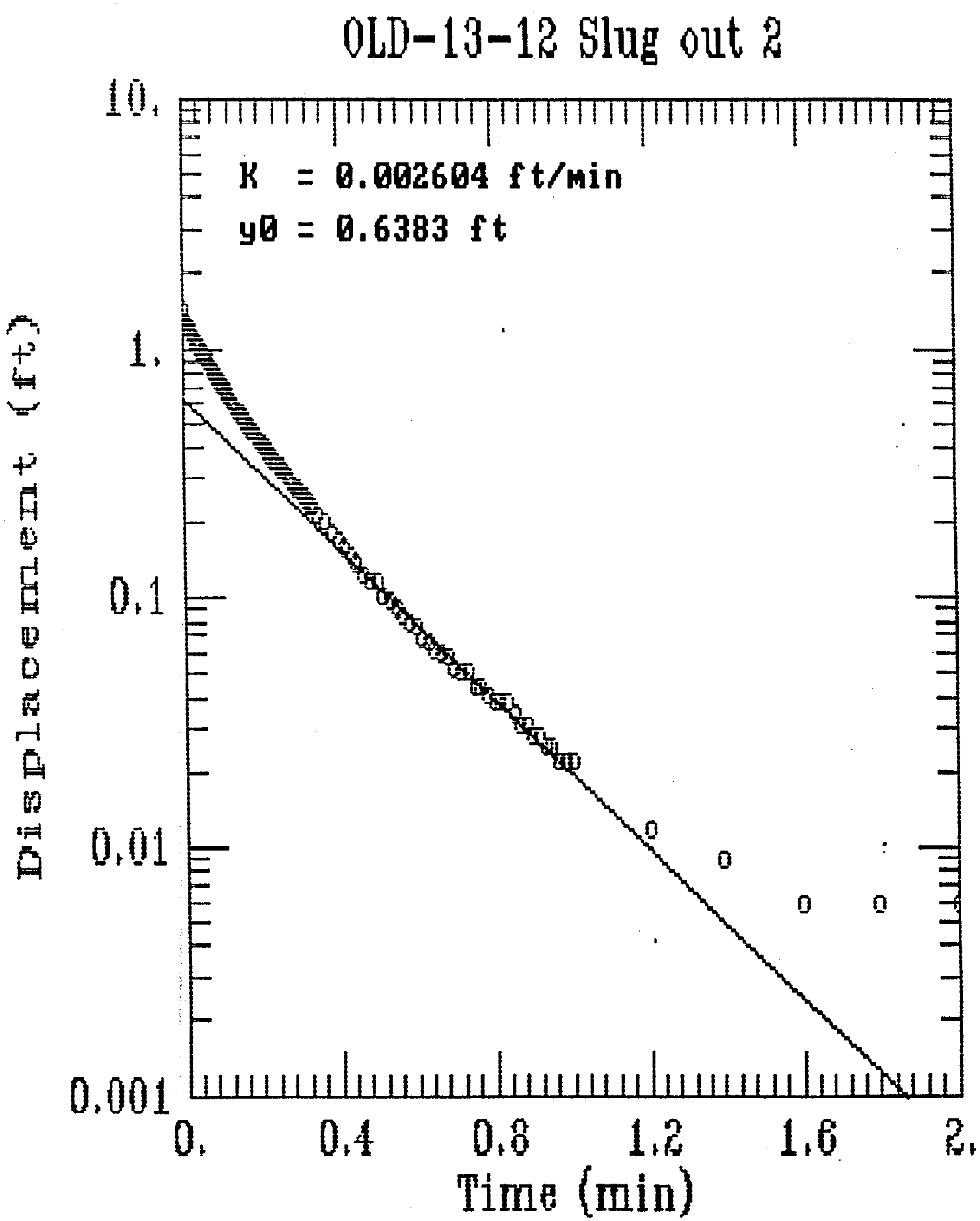
GERAGHTY & MILLER, INC.

Modeling Group

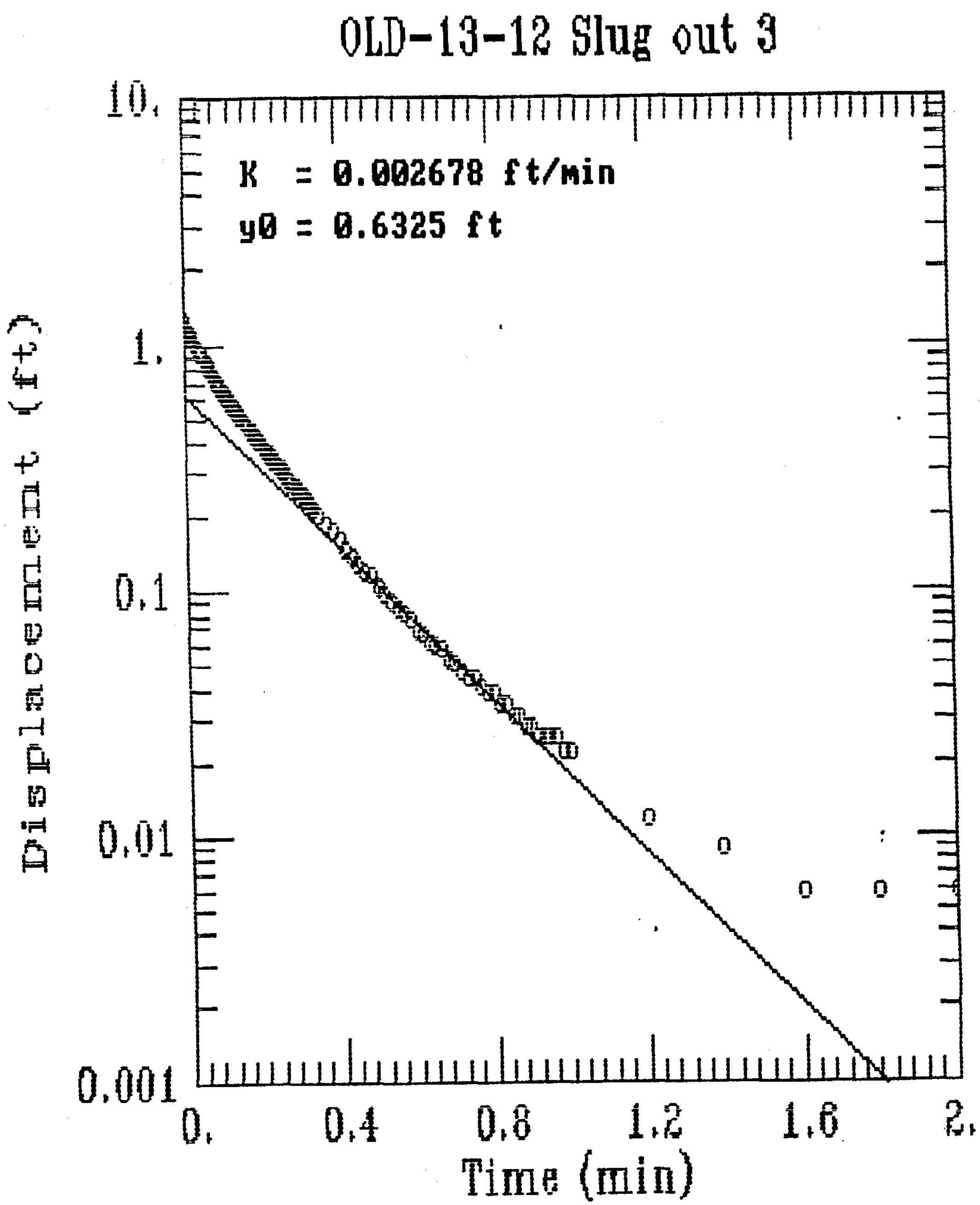

OLD-13-10 Slug out 2
K = 0.004509 ft/min
y0 = 1.428 ft
10.
1.
0.1
0.01
0.001
Displacement (ft)
0.
2.
4.
6.
8.
10.
Time (min)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

OLD-13-12 Slug out 1

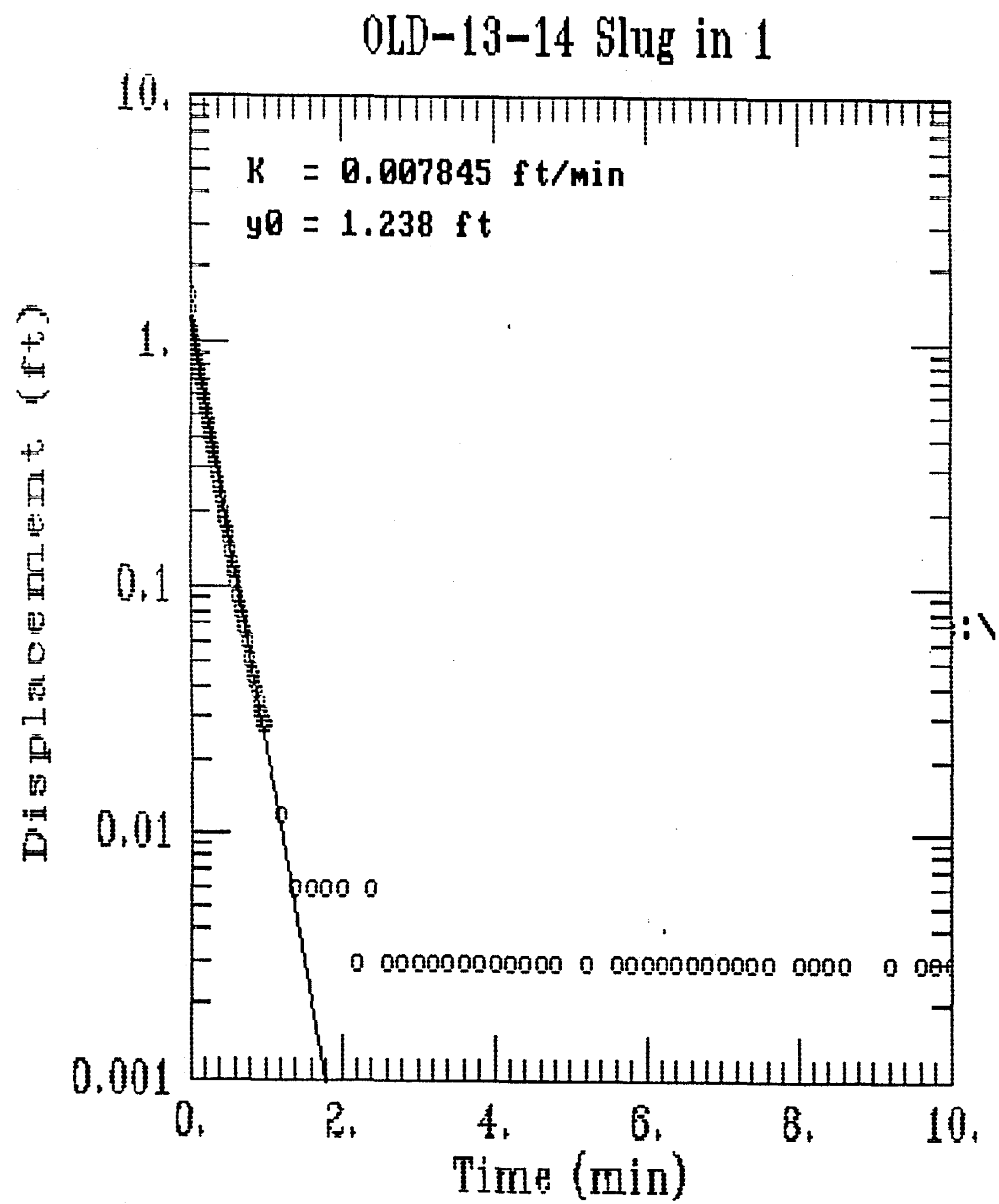




OLD-13-12 Slug out 2
K = 0.002604 ft/min
y0 = 0.6383 ft
Displacement (ft)
10.
1.
0.1
0.01
0.001
0.
0.4
0.8
1.2
1.6
2.
Time (min)



OLD-13-12 Slug out 3
K = 0.002678 ft/min
y0 = 0.6325 ft
Displacement (ft)
10.
1.
0.1
0.01
0.001
0.
0.4
0.8
1.2
1.6
2.
Time (min)



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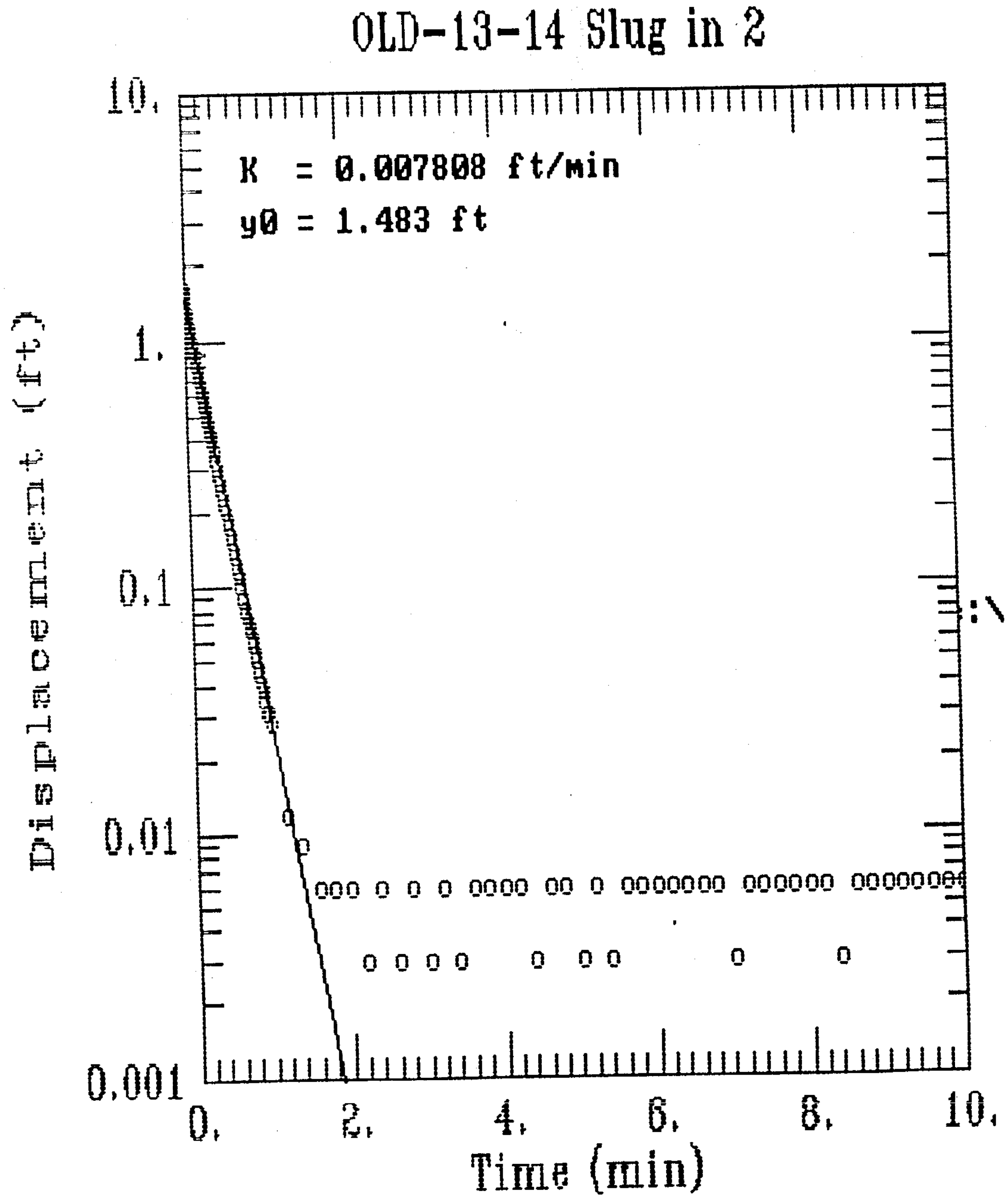
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group



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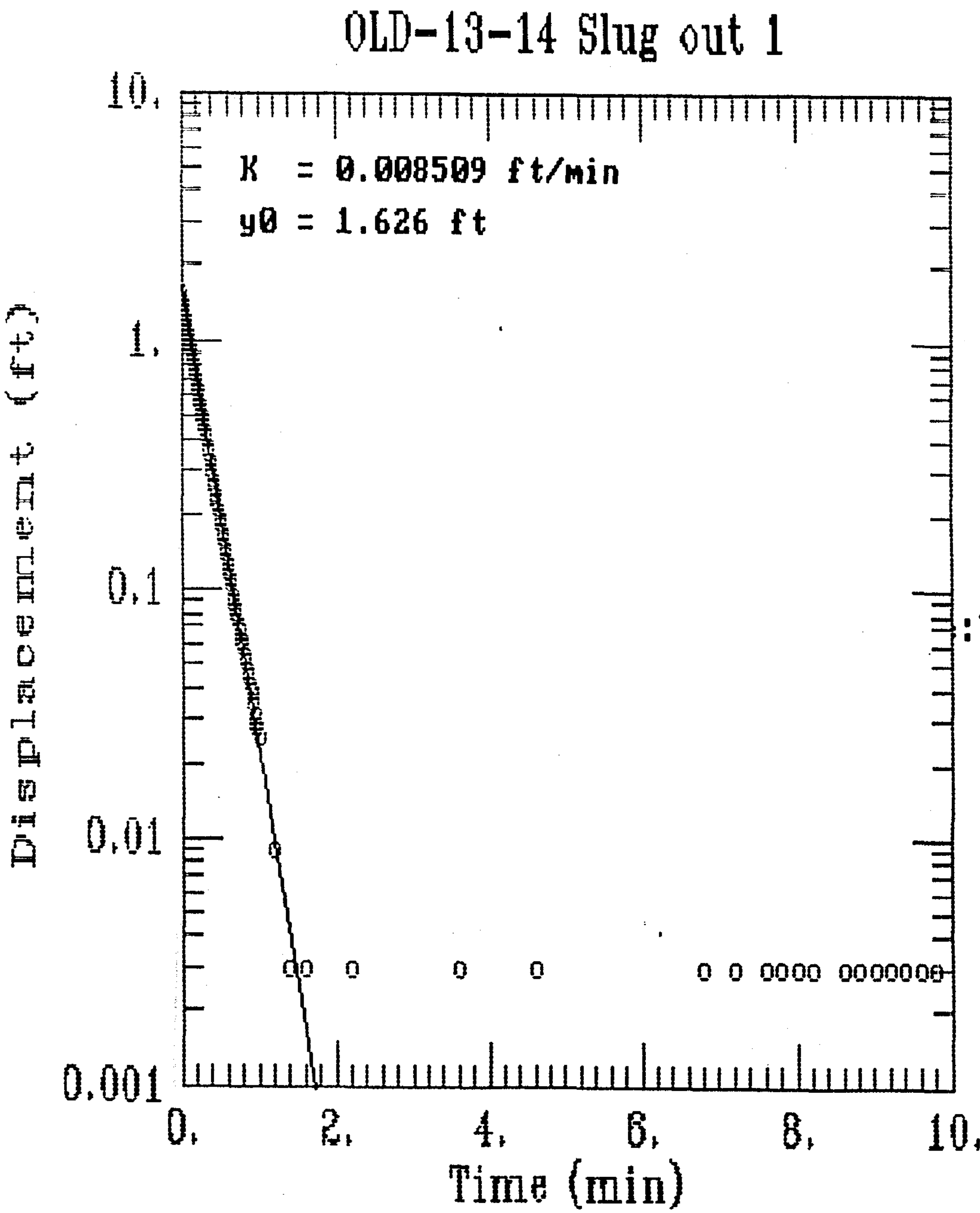
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group



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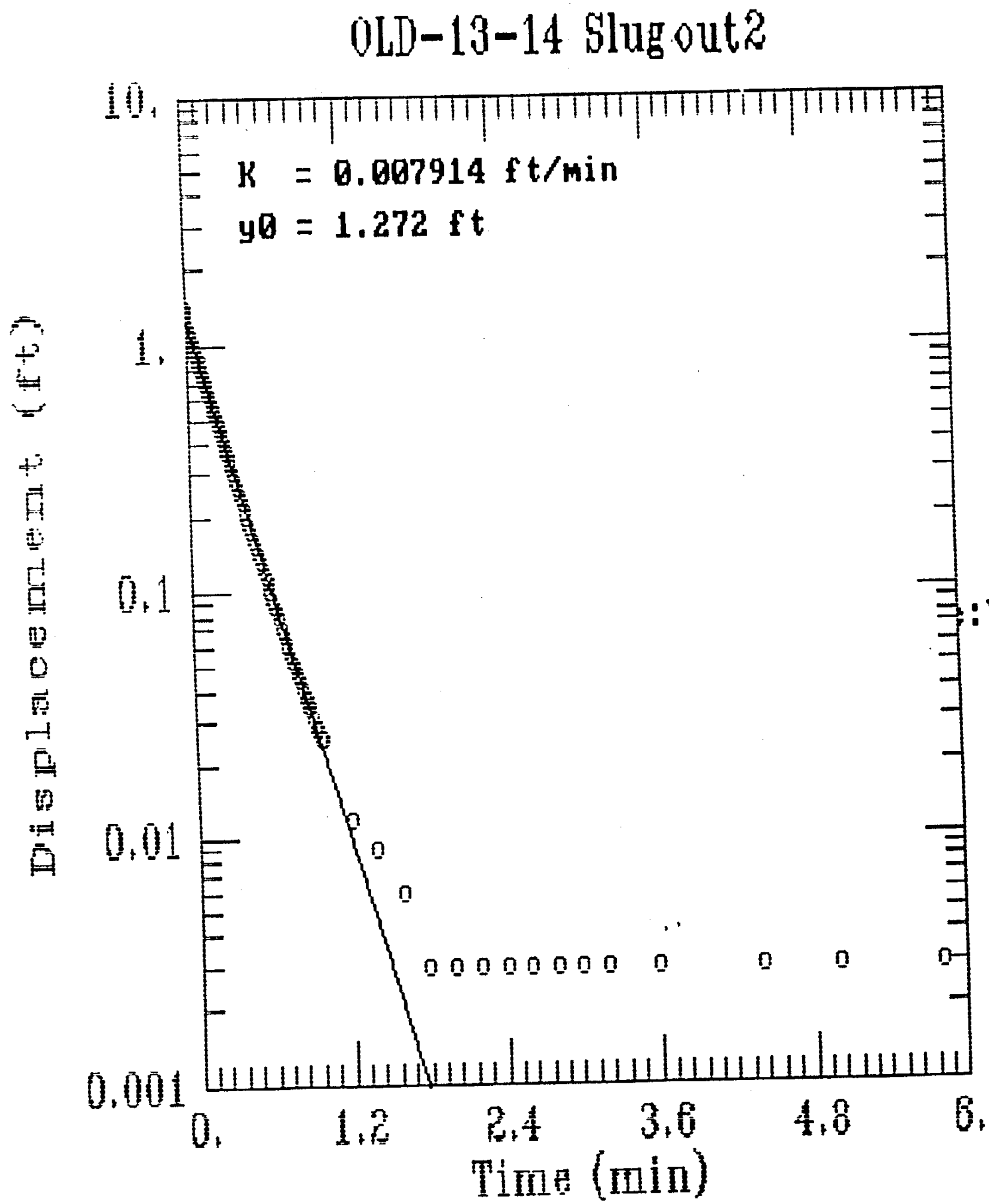
GERAGHTY & MILLER, INC.

Modeling Group



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GERAGHTY & MILLER, INC.

Modeling Group

APPENDIX K

ONSITE LABORATORY ANALYTICAL SUMMARY TABLES

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4D00101F	544389.00	1536611.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00201F	544580.00	1536844.00	May-96	D			92.0	220.0	110.0	2.1	N/D	0.4	424.5	N/D	N/D	N/D	N/D	N/D	0.0	849.0
U4D00301F	544608.00	1536833.00	May-96	D			1.6	150.0	92.0	1.0	N/D	N/D	244.6	N/D	N/D	N/D	N/D	N/D	0.0	489.2
U4D00401F	544629.00	1536844.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00402F	544629.00	1536844.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00501F	544649.00	1536846.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00502F	544649.00	1536846.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00601F	544568.00	1536873.00	May-96	D			N/D	27.0	750.0	5.6	N/D	95.0	877.6	N/D	N/D	N/D	N/D	N/D	0.0	1755.2
U4D00701F	544532.00	1536892.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	11.0	N/D	N/D	N/D	11.0	11.0
U4D00702F	544532.00	1536892.00	May-96	D			N/D	3.7	N/D	N/D	N/D	N/D	3.7	N/D	N/D	N/D	N/D	N/D	0.0	7.4
U4D00801F	544529.00	1536921.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D00802F	544529.00	1536921.00	May-96	D			N/D	1.1	N/D	N/D	N/D	N/D	1.1	N/D	N/D	N/D	N/D	N/D	0.0	2.2
U4D00901F	544544.00	1536944.00	May-96	D			N/D	N/D	2.2	N/D	N/D	N/D	2.2	N/D	1.6	N/D	N/D	N/D	1.6	6.0
U4D00901FD	544544.00	1536944.00	May-96	D			N/D	0.6	N/D	N/D	N/D	N/D	0.6	N/D	N/D	N/D	N/D	N/D	0.0	1.2
U4D01001F	544558.00	1536844.00	May-96	D			94000.0	53000.0	500.0	35.0	N/D	13.0	147548.0	N/D	3.3	N/D	N/D	1.9	5.2	295101.2
U4D01101F	544565.00	1536806.00	May-96	D			N/D	3.6	38.0	N/D	N/D	1.3	42.9	N/D	N/D	N/D	N/D	1.3	1.3	87.1
U4D01102F	544565.00	1536806.00	May-96	D			N//D	3.8	22.0	N/D	N/D	N/D	25.8	N/D	N/D	N/D	N/D	10.0	10.0	61.6
U4D01201F	544526.00	1536790.00	May-96	D			43.0	1400.0	3000.0	28.0	N/D	53.0	4524.0	N/D	2.3	N/D	N/D	N/D	2.3	9050.3
U4D01301F	544510.00	1536753.00	May-96	D			22.0	360.0	700.0	6.8	N/D	N/D	1088.8	N/D	N/D	N/D	N/D	N/D	0.0	2177.6
U4D01302F	544510.00	1536753.00	May-96	D			0.9	79.0	220.0	1.7	N/D	N/D	301.6	N/D	N/D	N/D	N/D	N/D	0.0	603.2
U4D01401F	544475.00	1536728.00	May-96	D			1.8	72.0	53.0	N/D	N/D	N/D	126.8	N/D	N/D	N/D	N/D	N/D	0.0	253.6
U4D01402F	544475.00	1536728.00	May-96	D			N/D	7.8	6.1	N/D	N/D	N/D	13.9	N/D	N/D	N/D	N/D	N/D	0.0	27.8
U4D01501F	544470.00	1536698.00	May-96	D			1.4	56.0	38.0	N/D	N/D	N/D	95.4	N/D	1.4	N/D	N/D	N/D	1.4	192.2
U4D01502F	544470.00	1536698.00	May-96	D			N/D	13.0	10.0	N/D	N/D	N/D	23.0	N/D	N/D	N/D	N/D	N/D	0.0	46.0
U4D01601F	544457.00	1536689.00	May-96	D			1.0	0.7	N/D	N/D	N/D	N/D	1.7	N/D	N/D	N/D	N/D	N/D	0.0	3.4
U4D01602F	544457.00	1536689.00	May-96	D			0.7	N/D	N/D	N/D	N/D	N/D	0.7	N/D	N/D	N/D	N/D	N/D	0.0	1.4
U4D01701F	544446.00	1536656.00	May-96	D			N/D	N/D	N/D	N/D	N/D	0.5	0.5	N/D	150.0	N/D	N/D	N/D	150.0	151.0
U4D01702F	544446.00	1536656.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D01801F	544428.00	1536627.00	May-96	D			20.0	10.0	7.9	N/D	N/D	N/D	37.9	N/D	550.0	N/D	N/D	N/D	550.0	625.8
U4D01802F	544428.00	1536627.00	May-96	D			N/D	1.3	N/D	N/D	N/D	0.2	1.5	N/D	N/D	N/D	N/D	N/D	0.0	3.0
U4D01802FD	544428.00	1536627.00	May-96	D			0.8	1.2	N/D	N/D	N/D	N/D	2.0	N/D	N/D	N/D	N/D	N/D	0.0	4.0
U4D01901F	544528.00	1536841.00	May-96	D			78.0	800.0	160.0	2.4	N/D	1.5	1041.9	N/D	N/D	N/D	N/D	N/D	0.0	2083.8
U4D02001F	544541.00	1536868.00	May-96	D			N/D	9.0	3.0	N/D	N/D	N/D	12.0	N/D	N/D	N/D	N/D	N/D	0.0	24.0
U4D02101F	544513.00	1536821.00	May-96	D			18.0	410.0	36.0	N/D	1.2	N/D	465.2	N/D	N/D	N/D	N/D	N/D	0.0	930.4
U4D02201F	544499.00	1536794.00	May-96	D			200.0	6.6	N/D	N/D	N/D	N/D	206.6	N/D	N/D	N/D	N/D	N/D	0.0	413.2
U4D02301F	544517.00	1536872.00	May-96	D			N/D	3.9	31.0	N/D	N/D	N/D	34.9	N/D	N/D	N/D	N/D	N/D	0.0	69.8
U4D02401F	544478.00	1536772.00	May-96	D			1400.0	100.0	41.0	N/D	N/D	N/D	1541.0	N/D	N/D	N/D	N/D	N/D	0.0	3082.0
U4D02501F	544463.00	1536747.00	May-96	D			4.4	42.0	20.0	N/D	N/D	N/D	66.4	N/D	N/D	N/D	N/D	N/D	0.0	132.8
U4D02601F	544444.00	1536723.00	May-96	D			N/D	130.0	80.0	N/D	N/D	N/D	210.0	N/D	N/D	N/D	N/D	N/D	0.0	420.0
U4D02601FD	544444.00	1536723.00	May-96	D			N/D	42.0	25.0	N/D	N/D	N/D	67.0	N/D	N/D	N/D	N/D	N/D	0.0	134.0
U4D02701F	544433.00	1536700.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D02801F	544422.00	1536677.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D02901F	544413.00	1536654.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03001F	544491.00	1536897.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03101F	544505.00	1536849.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03201F	544492.00	1536822.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03301F	544428.00	1536844.00	May-96	D			2.0	N/D	N/D	N/D	N/D	N/D	2.0	N/D	N/D	N/D	N/D	N/D	0.0	4.0
U4D03401F	544409.00	1536799.00	May-96	D			8.1	N/D	N/D	N/D	N/D	N/D	8.1	N/D	N/D	N/D	N/D	N/D	0.0	16.2

FOCUSED FIELD INVESTIGATION, OU4
SUMMARY TABLE FOR FIELD LABORATORY AND OFFSITE ANALYTICAL RESULTS

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4D03501F	544393.00	1536758.00	May-96	D			N/D	15.0	5.7	N/D	N/D	N/D	20.7	N/D	N/D	N/D	N/D	N/D	0.0	41.4
U4D03601F	544380.00	1536705.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03701F	544358.00	1536664.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03801F	544361.00	1536841.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D03901F	544338.00	1536795.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04001F	544441.00	1536888.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04101F	544337.00	1536745.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04201F	544382.00	1536632.00	May-96	D			N/D	0.7	N/D	N/D	N/D	N/D	0.7	N/D	N/D	N/D	N/D	N/D	0.0	1.4
U4D04201FD	544382.00	1536632.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04301F	543989.00	1536792.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04401F	544384.00	1536877.00	May-96	D			28.0	18.0	N/D	N/D	N/D	N/D	46.0	N/D	N/D	N/D	N/D	N/D	0.0	92.0
U4D04501F	544451.00	1536627.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04601F	544178.00	1536756.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04701F	544347.00	1536909.00	May-96	D			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4D04801F	544310.00	1536866.00	May-96	D			N/D	N/D	160.0	1.2	N/D	N/D	161.2	N/D	N/D	N/D	N/D	N/D	0.0	322.4
U4G00101F	544607.72	1536833.15	May-96	G			6.4	3000.0	1600.0	25.0	N/D	N/D	4631.4	N/D	N/D	N/D	N/D	N/D	0.0	9262.8
U4G00102F	544607.72	1536833.15	May-96	G			1.5	450.0	880.0	32.0	N/D	1.0	1364.5	N/D	N/D	N/D	N/D	N/D	0.0	2729.0
U4G00201F	544552.55	1536846.70	May-96	G			590.0	5800.0	530.0	5.0	N/D	N/D	6925.0	N/D	N/D	N/D	N/D	N/D	0.0	13850.0
U4G00202F	544552.55	1536846.70	May-96	G			120.0	1300.0	840.0	25.0	1.1	0.4	2286.5	N/D	N/D	N/D	N/D	N/D	0.0	4573.0
U4G00301F	544560.09	1536800.29	May-96	G			22.0	1400.0	710.0	19.0	N/D	N/D	2151.0	N/D	N/D	N/D	N/D	N/D	0.0	4302.0
U4G00401F	544531.80	1536885.31	May-96	G			3.4	3.3	2.2	N/D	N/D	N/D	8.9	N/D	N/D	N/D	N/D	N/D	0.0	17.8
U4G00501F	544507.63	1536747.31	May-96	G			8.4	330.0	570.0	11.0	N/D	N/D	919.4	N/D	N/D	N/D	N/D	N/D	0.0	1838.8
U4G00601F	544464.00	1536834.00	May-96	G			22.0	27.0	2.2	N/D	N/D	N/D	51.2	N/D	N/D	N/D	N/D	N/D	0.0	102.4
U4G00901	544605.89	1536845.69	Jun-96	G	1	11	N/D	500.0	830.0	N/D	N/D	N/D	1330.0	N/D	N/D	N/D	N/D	N/D	0.0	2660.0
U4G00901D	544605.89	1536845.69	Jun-96	G	1	11	N/D	680.0	850.0	N/D	N/D	N/D	1530.0	N/D	N/D	N/D	N/D	N/D	0.0	3060.0
U4G01001	544607.95	1536857.37	Jun-96	G	16	21	N/D	76.0	140.0	N/D	N/D	N/D	216.0	N/D	N/D	N/D	N/D	N/D	0.0	432.0
U4G01101	544600.52	1536850.67	Jun-96	G	57	62	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4G01201	544687.41	1536803.34	Jun-96	G	1.5	11.5	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4G01301	544693.11	1536799.83	Jun-96	G	16	21	N/D	35.0	130.0	N/D	N/D	N/D	165.0	N/D	N/D	N/D	N/D	N/D	0.0	330.0
U4G01401	544695.82	1536807.66	Jun-96	G	57	62	91.0	N/D	N/D	N/D	N/D	N/D	91.0	N/D	N/D	N/D	N/D	N/D	0.0	182.0
U4Q00101F	544606.00	1536854.00	May-96	Q	2	4	1.6	420.0	230.0	0.4	1.0	N/D	653.0	N/D	N/D	N/D	N/D	N/D	0.0	1306.0
U4Q00102F	544606.00	1536854.00	May-96	Q	4	6	75.0	990.0	570.0	2.5	N/D	N/D	1637.5	N/D	N/D	N/D	N/D	N/D	0.0	3275.0
U4Q00103F	544606.00	1536854.00	May-96	Q	6	8	N/D	110.0	410.0	N/D	N/D	N/D	520.0	N/D	N/D	N/D	N/D	N/D	0.0	1040.0
U4Q00104F	544606.00	1536854.00	May-96	Q	8	10	N/D	93.0	370.0	N/D	N/D	N/D	463.0	N/D	N/D	N/D	N/D	N/D	0.0	926.0
U4Q00105F	544606.00	1536854.00	May-96	Q	10	12	N/D	110.0	830.0	N/D	N/D	N/D	940.0	N/D	N/D	N/D	110.0	16.0	126.0	2006.0
U4Q00106F	544606.00	1536854.00	May-96	Q	24	26	12.0	18.0	N/D	N/D	N/D	N/D	30.0	N/D	N/D	N/D	N/D	N/D	0.0	60.0
U4Q00107F	544606.00	1536854.00	May-96	Q	26	28	8.8	11.0	N/D	N/D	N/D	N/D	19.8	N/D	N/D	N/D	N/D	N/D	0.0	39.6
U4Q00108F	544606.00	1536854.00	May-96	Q	28	30	9.4	3.1	N/D	N/D	N/D	N/D	12.5	N/D	N/D	N/D	N/D	N/D	0.0	25.0
U4Q00109F	544606.00	1536854.00	May-96	Q	30	32	3.5	1.2	N/D	N/D	N/D	N/D	4.7	N/D	N/D	N/D	N/D	N/D	0.0	9.4
U4Q00110F	544606.00	1536854.00	May-96	Q	32	34	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00111F	544606.00	1536854.00	May-96	Q	34	36	1.5	0.5	N/D	N/D	N/D	N/D	2.0	N/D	N/D	N/D	N/D	N/D	0.0	4.0
U4Q00112F	544606.00	1536854.00	May-96	Q	36	38	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00113F	544606.00	1536854.00	May-96	Q	38	40	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00113FD	544606.00	1536854.00	May-96	Q	38	40	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00114F	544606.00	1536854.00	May-96	Q	40	42	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00115F	544606.00	1536854.00	May-96	Q	42	44	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00116F	544606.00	1536854.00	May-96	Q	44	46	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00117F	544606.00	1536854.00	May-96	Q	46	48	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4Q00118F	544606.00	1536854.00	May-96	Q	48	50	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00119F	544606.00	1536854.00	May-96	Q	50	52	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00120F	544606.00	1536854.00	May-96	Q	52	54	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00121F	544606.00	1536854.00	May-96	Q	59	61	N/D	0.9	2.5	N/D	N/D	N/D	3.4	N/D	N/D	N/D	N/D	N/D	0.0	6.8
U4Q00122F	544606.00	1536854.00	May-96	Q	65	67	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00201F	544613.00	1536897.00	May-96	Q	3	5	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00202F	544613.00	1536897.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00203F	544613.00	1536897.00	May-96	Q	9	11	2.4	1.4	3.2	N/D	N/D	N/D	7.0	N/D	N/D	N/D	N/D	N/D	0.0	14.0
U4Q00204F	544613.00	1536897.00	May-96	Q	22	24	0.8	N/D	N/D	N/D	N/D	N/D	0.8	N/D	N/D	N/D	N/D	N/D	0.0	1.6
U4Q00205F	544613.00	1536897.00	May-96	Q	24	26	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00206F	544613.00	1536897.00	May-96	Q	28	30	0.6	N/D	N/D	N/D	N/D	N/D	0.6	N/D	N/D	N/D	N/D	N/D	0.0	1.2
U4Q00207F	544613.00	1536897.00	May-96	Q	32	34	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00208F	544613.00	1536897.00	May-96	Q	40	42	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00209F	544613.00	1536897.00	May-96	Q	48	50	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00210F	544613.00	1536897.00	May-96	Q	56	58	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00211F	544613.00	1536897.00	May-96	Q	60	62	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00301F	544610.00	1536936.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00302F	544610.00	1536936.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00303F	544610.00	1536936.00	May-96	Q	8	10	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00304F	544610.00	1536936.00	May-96	Q	10	12	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00305F	544610.00	1536936.00	May-96	Q	12	14	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00305FD	544610.00	1536936.00	May-96	Q	12	14	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00306F	544610.00	1536936.00	May-96	Q	16	18	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00307F	544610.00	1536936.00	May-96	Q	22	24	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00308F	544610.00	1536936.00	May-96	Q	34	36	10.0	N/D	N/D	N/D	N/D	N/D	10.0	N/D	N/D	N/D	N/D	N/D	0.0	20.0
U4Q00309F	544610.00	1536936.00	May-96	Q	42	44	0.8	N/D	N/D	N/D	N/D	N/D	0.8	N/D	N/D	N/D	N/D	N/D	0.0	1.6
U4Q00309FD	544610.00	1536936.00	May-96	Q	42	44	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00310F	544610.00	1536936.00	May-96	Q	52	54	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00311F	544610.00	1536936.00	May-96	Q	60	62	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00401F	544567.00	1536795.00	May-96	Q	2	4	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00402F	544567.00	1536795.00	May-96	Q	4	6	N/D	N/D	5.8	N/D	N/D	N/D	5.8	N/D	N/D	N/D	N/D	N/D	0.0	11.6
U4Q00403F	544567.00	1536795.00	May-96	Q	6	8	1.7	270.0	1100.0	100.0	1.6	3.0	1476.3	N/D	N/D	N/D	N/D	N/D	0.0	2952.6
U4Q00404F	544567.00	1536795.00	May-96	Q	8.5	10.5	8.1	680.0	640.0	19.0	N/D	N/D	1347.1	N/D	N/D	N/D	N/D	N/D	0.0	2694.2
U4Q00405F	544567.00	1536795.00	May-96	Q	15	17	64.0	190.0	4.4	N/D	N/D	N/D	258.4	N/D	N/D	N/D	N/D	N/D	0.0	516.8
U4Q00406F	544567.00	1536795.00	May-96	Q	17	19	97.0	270.0	4.8	N/D	N/D	N/D	371.8	N/D	N/D	N/D	N/D	N/D	0.0	743.6
U4Q00407F	544567.00	1536795.00	May-96	Q	19	21	19.0	160.0	2.2	N/D	N/D	0.1	181.3	N/D	N/D	N/D	N/D	N/D	0.0	362.6
U4Q00407FD	544567.00	1536795.00	May-96	Q	19	21	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00408F	544567.00	1536795.00	May-96	Q	21	23	44.0	310.0	5.0	0.4	N/D	N/D	359.4	0.4	0.4	3.8	N/D	0.7	5.3	724.1
U4Q00409F	544567.00	1536795.00	May-96	Q	23	25	170.0	130.0	3.0	N/D	N/D	N/D	303.0	N/D	N/D	N/D	N/D	N/D	0.0	606.0
U4Q00410F	544567.00	1536795.00	May-96	Q	25	27	180.0	180.0	4.7	N/D	N/D	N/D	364.7	N/D	N/D	N/D	N/D	N/D	0.0	729.4
U4Q00411F	544567.00	1536795.00	May-96	Q	27	29	130.0	56.0	4.2	N/D	N/D	N/D	190.2	N/D	N/D	N/D	N/D	N/D	0.0	380.4
U4Q00412F	544567.00	1536795.00	May-96	Q	29	31	120.0	11.0	N/D	N/D	N/D	N/D	131.0	N/D	N/D	N/D	N/D	N/D	0.0	262.0
U4Q00413F	544567.00	1536795.00	May-96	Q	31	33	120.0	12.0	N/D	N/D	N/D	N/D	132.0	N/D	N/D	N/D	N/D	3.1	3.1	267.1
U4Q00414F	544567.00	1536795.00	May-96	Q	33	35	99.0	1.7	N/D	N/D	N/D	N/D	100.7	N/D	N/D	N/D	N/D	N/D	0.0	201.4
U4Q00415F	544567.00	1536795.00	May-96	Q	35	37	13.0	0.4	N/D	N/D	N/D	N/D	13.4	N/D	N/D	N/D	N/D	N/D	0.0	26.8
U4Q00416F	544567.00	1536795.00	May-96	Q	37	39	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00417F	544567.00	1536795.00	May-96	Q	39	41	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00418F	544567.00	1536795.00	May-96	Q	41	43	0.8	0.8	N/D	N/D	N/D	N/D	1.6	N/D	N/D	N/D	N/D	N/D	0.0	3.2

FOCUSED FIELD INVESTIGATION, OU4

SUMMARY TABLE FOR FIELD LABORATORY AND OFFSITE ANALYTICAL RESULTS

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4Q00419F	544567.00	1536795.00	May-96	Q	43	45	2.8	0.9	N/D	N/D	N/D	N/D	3.7	N/D	N/D	N/D	N/D	N/D	0.0	7.4
U4Q00420F	544567.00	1536795.00	May-96	Q	45	47	4.9	1.0	N/D	N/D	N/D	N/D	5.9	N/D	N/D	N/D	N/D	N/D	0.0	11.8
U4Q00421F	544567.00	1536795.00	May-96	Q	47	49	1.0	N/D	N/D	N/D	N/D	N/D	1.0	N/D	N/D	N/D	N/D	N/D	0.0	2.0
U4Q00422F	544567.00	1536795.00	May-96	Q	49	51	0.9	N/D	N/D	N/D	N/D	N/D	0.9	N/D	N/D	N/D	N/D	N/D	0.0	1.8
U4Q00423F	544567.00	1536795.00	May-96	Q	51	53	0.8	N/D	N/D	N/D	N/D	N/D	0.8	N/D	N/D	N/D	N/D	N/D	0.0	1.6
U4Q00424F	544567.00	1536795.00	May-96	Q	53	55	4.4	N/D	N/D	N/D	N/D	N/D	4.4	N/D	N/D	N/D	N/D	N/D	0.0	8.8
U4Q00425F	544567.00	1536795.00	May-96	Q	55	57	220.0	9.9	N/D	N/D	N/D	N/D	229.9	N/D	N/D	N/D	N/D	N/D	0.0	459.8
U4Q00426F	544567.00	1536795.00	May-96	Q	57	59	4.3	1.0	N/D	N/D	N/D	N/D	5.3	N/D	N/D	N/D	N/D	N/D	0.0	10.6
U4Q00501F	544570.00	1536750.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00502F	544570.00	1536750.00	May-96	Q	6	8	N/D	7.1	3.5	N/D	N/D	N/D	10.6	N/D	N/D	N/D	N/D	N/D	0.0	21.2
U4Q00503F	544570.00	1536750.00	May-96	Q	20	22	950.0	23.0	6.7	N/D	N/D	N/D	979.7	N/D	N/D	N/D	N/D	N/D	0.0	1959.4
U4Q00504F	544570.00	1536750.00	May-96	Q	24	26	300.0	5.0	1.6	N/D	N/D	N/D	306.6	N/D	N/D	N/D	N/D	N/D	0.0	613.2
U4Q00505F	544570.00	1536750.00	May-96	Q	28	30	300.0	3.0	1.2	N/D	N/D	N/D	304.2	N/D	N/D	N/D	N/D	N/D	0.0	608.4
U4Q00506F	544570.00	1536750.00	May-96	Q	32	34	48.0	3.1	N/D	N/D	N/D	N/D	51.1	N/D	N/D	N/D	N/D	N/D	0.0	102.2
U4Q00506FD	544570.00	1536750.00	May-96	Q	32	34	50.0	2.5	N/D	N/D	N/D	0.1	52.6	N/D	N/D	N/D	N/D	N/D	0.0	105.2
U4Q00507F	544570.00	1536750.00	May-96	Q	36	38	0.4	N/D	N/D	N/D	N/D	N/D	0.4	N/D	N/D	N/D	N/D	N/D	0.0	0.8
U4Q00508F	544570.00	1536750.00	May-96	Q	42	44	0.4	N/D	N/D	N/D	N/D	N/D	0.4	N/D	N/D	N/D	N/D	N/D	0.0	0.8
U4Q00509F	544570.00	1536750.00	May-96	Q	48	50	1.7	1.2	N/D	N/D	N/D	N/D	2.9	N/D	N/D	N/D	N/D	N/D	0.0	5.8
U4Q00510F	544570.00	1536750.00	May-96	Q	58	60	0.5	N/D	N/D	N/D	N/D	N/D	0.5	N/D	N/D	N/D	N/D	N/D	0.0	1.0
U4Q00601F	544562.00	1536704.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00602F	544562.00	1536704.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00603F	544562.00	1536704.00	May-96	Q	9	11	1.5	9.0	5.4	N/D	N/D	N/D	15.9	N/D	N/D	N/D	N/D	N/D	0.0	31.8
U4Q00604F	544562.00	1536704.00	May-96	Q	11	13	2.4	71.0	54.0	1.2	N/D	N/D	128.6	N/D	N/D	N/D	N/D	N/D	0.0	257.2
U4Q00605F	544562.00	1536704.00	May-96	Q	22	24	2.0	10.0	1.9	N/D	N/D	N/D	13.9	N/D	N/D	N/D	N/D	N/D	0.0	27.8
U4Q00606F	544562.00	1536704.00	May-96	Q	26	28	3.7	13.0	3.0	N/D	N/D	N/D	19.7	N/D	N/D	N/D	N/D	N/D	0.0	39.4
U4Q00607F	544562.00	1536704.00	May-96	Q	30	32	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00701F	544524.00	1536677.00	May-96	Q	4	6	3.2	26.0	3.8	N/D	N/D	N/D	33.0	N/D	N/D	N/D	N/D	N/D	0.0	66.0
U4Q00702F	544524.00	1536677.00	May-96	Q	6	8	12.0	14.0	2.0	N/D	N/D	N/D	28.0	N/D	N/D	N/D	N/D	N/D	0.0	56.0
U4Q00703F	544524.00	1536677.00	May-96	Q	18	20	24.0	28.0	14.0	N/D	N/D	N/D	66.0	N/D	N/D	N/D	N/D	N/D	0.0	132.0
U4Q00801F	544506.00	1536617.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00802F	544506.00	1536617.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00803F	544506.00	1536617.00	May-96	Q	18	20	15.0	7.0	3.2	N/D	N/D	N/D	25.2	N/D	N/D	N/D	N/D	N/D	0.0	50.4
U4Q00804F	544506.00	1536617.00	May-96	Q	24	26	7.0	13.0	2.7	N/D	N/D	N/D	22.7	N/D	N/D	N/D	N/D	N/D	0.0	45.4
U4Q00805F	544506.00	1536617.00	May-96	Q	30	32	N/D	16.0	N/D	N/D	N/D	N/D	16.0	N/D	N/D	N/D	N/D	N/D	0.0	32.0
U4Q00806F	544506.00	1536617.00	May-96	Q	38	40	11.0	15.0	N/D	N/D	N/D	N/D	26.0	N/D	N/D	N/D	N/D	N/D	0.0	52.0
U4Q00807F	544506.00	1536617.00	May-96	Q	46	48	N/D	0.6	N/D	N/D	N/D	N/D	0.6	N/D	N/D	N/D	N/D	N/D	0.0	1.2
U4Q00808F	544506.00	1536617.00	May-96	Q	50	52	5.2	18.0	N/D	N/D	N/D	0.3	23.5	N/D	N/D	N/D	N/D	N/D	0.0	47.0
U4Q00809F	544506.00	1536617.00	May-96	Q	54	56	0.5	0.5	N/D	N/D	N/D	N/D	1.0	N/D	N/D	N/D	N/D	N/D	0.0	2.0
U4Q00901F	544480.00	1536573.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00902F	544480.00	1536573.00	May-96	Q	7	9	2.8	3.4	1.5	N/D	N/D	N/D	7.7	N/D	N/D	N/D	N/D	N/D	0.0	15.4
U4Q00903F	544506.00	1536567.00	May-96	Q	16	18	9.6	12.0	N/D	N/D	N/D	N/D	21.6	N/D	N/D	N/D	N/D	N/D	0.0	43.2
U4Q00903FD	544506.00	1536567.00	May-96	Q	16	18	8.3	8.9	N/D	N/D	N/D	N/D	17.2	N/D	N/D	N/D	N/D	N/D	0.0	34.4
U4Q00904F	544506.00	1536567.00	May-96	Q	20	22	10.0	2.4	N/D	N/D	N/D	N/D	12.4	N/D	N/D	N/D	N/D	N/D	0.0	24.8
U4Q00904FD	544506.00	1536567.00	May-96	Q	20	22	10.0	4.4	N/D	N/D	N/D	N/D	14.4	N/D	N/D	N/D	N/D	N/D	0.0	28.8
U4Q00905F	544506.00	1536567.00	May-96	Q	24	26	N/D	5.5	N/D	N/D	N/D	0.3	5.8	N/D	N/D	N/D	N/D	N/D	0.0	11.6
U4Q00905FD	544506.00	1536567.00	May-96	Q	24	26	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00906F	544506.00	1536567.00	May-96	Q	28	30	7.8	10.0	N/D	N/D	N/D	N/D	17.8	N/D	N/D	N/D	N/D	N/D	0.0	35.6
U4Q00906FD	544506.00	1536567.00	May-96	Q	28	30	1.9	2.6	N/D	N/D	N/D	N/D	4.5	N/D	N/D	N/D	N/D	N/D	0.0	9.0

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4Q00907F	544506.00	1536567.00	May-96	Q	34	36	N/D	1.0	N/D	N/D	N/D	N/D	1.0	N/D	N/D	N/D	N/D	N/D	0.0	2.0
U4Q00908F	544506.00	1536567.00	May-96	Q	42	44	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00909F	544506.00	1536567.00	May-96	Q	48	50	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q00910F	544506.00	1536567.00	May-96	Q	52	54	0.5	0.8	N/D	N/D	N/D	N/D	1.3	N/D	N/D	N/D	N/D	N/D	0.0	2.6
U4Q01001F	544689.00	1536820.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01002F	544689.00	1536820.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01003F	544689.00	1536820.00	May-96	Q	8	10	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01004F	544689.00	1536820.00	May-96	Q	10	12	N/D	4.8	12.0	N/D	N/D	N/D	16.8	N/D	N/D	N/D	N/D	N/D	0.0	33.6
U4Q01005F	544689.00	1536820.00	May-96	Q	12	14	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01006F	544689.00	1536820.00	May-96	Q	14	16	N/D	84.0	800.0	69.0	0.9	5.0	958.9	N/D	N/D	N/D	N/D	N/D	0.0	1917.8
U4Q01007F	544689.00	1536820.00	May-96	Q	22	24	17.0	780.0	800.0	20.0	N/D	8.3	1625.3	N/D	N/D	N/D	N/D	N/D	0.0	3250.6
U4Q01008F	544689.00	1536820.00	May-96	Q	24	26	21.0	960.0	790.0	20.0	N/D	3.0	1794.0	N/D	N/D	N/D	N/D	N/D	0.0	3588.0
U4Q01009F	544689.00	1536820.00	May-96	Q	26	28	1500.0	41.0	550.0	16.0	N/D	0.9	2107.9	N/D	N/D	N/D	N/D	N/D	0.0	4215.8
U4Q01010F	544689.00	1536820.00	May-96	Q	28	30	43.0	2000.0	100.0	14.0	1.0	2.1	2160.1	N/D	N/D	N/D	N/D	N/D	0.0	4320.2
U4Q01011F	544689.00	1536820.00	May-96	Q	30	32	2600.0	3800.0	65.0	10.0	4.0	N/D	6479.0	N/D	N/D	N/D	N/D	N/D	0.0	12958.0
U4Q01012F	544689.00	1536820.00	May-96	Q	32	34	290.0	3200.0	150.0	16.0	7.2	2.7	3665.9	N/D	N/D	N/D	N/D	N/D	0.0	7331.8
U4Q01013F	544689.00	1536820.00	May-96	Q	34	36	240.0	1500.0	54.0	3.8	N/D	0.9	1798.7	N/D	N/D	N/D	N/D	N/D	0.0	3597.4
U4Q01014F	544689.00	1536820.00	May-96	Q	38	40	45.0	190.0	3.9	N/D	N/D	N/D	238.9	N/D	N/D	N/D	N/D	N/D	0.0	477.8
U4Q01015F	544689.00	1536820.00	May-96	Q	42	44	3.4	15.0	N/D	N/D	N/D	N/D	18.4	N/D	N/D	N/D	N/D	N/D	0.0	36.8
U4Q01016F	544689.00	1536820.00	May-96	Q	46	48	3.4	14.0	1.8	N/D	N/D	N/D	19.2	N/D	N/D	N/D	N/D	N/D	0.0	38.4
U4Q01017F	544689.00	1536820.00	May-96	Q	48	50	1.2	32.0	1.8	N/D	N/D	N/D	35.0	N/D	N/D	N/D	N/D	N/D	0.0	70.0
U4Q01018F	544689.00	1536820.00	May-96	Q	50	52	17.0	39.0	N/D	N/D	N/D	N/D	56.0	N/D	N/D	N/D	N/D	N/D	0.0	112.0
U4Q01019F	544689.00	1536820.00	May-96	Q	52	54	4.0	33.0	N/D	N/D	N/D	N/D	37.0	N/D	N/D	N/D	N/D	N/D	0.0	74.0
U4Q01020F	544689.00	1536820.00	May-96	Q	54	56	4.9	45.0	2.7	N/D	N/D	N/D	52.6	N/D	N/D	N/D	N/D	N/D	0.0	105.2
U4Q01021F	544689.00	1536820.00	May-96	Q	56	58	7.2	60.0	71.0	1.0	N/D	N/D	139.2	N/D	N/D	N/D	N/D	N/D	0.0	278.4
U4Q01022F	544689.00	1536820.00	May-96	Q	58	60	9.1	18.0	N/D	N/D	N/D	N/D	27.1	N/D	N/D	N/D	N/D	N/D	0.0	54.2
U4Q01023F	544689.00	1536820.00	May-96	Q	60	62	1.3	8.4	N/D	N/D	N/D	N/D	9.7	N/D	N/D	N/D	N/D	N/D	0.0	19.4
U4Q01024F	544689.00	1536820.00	May-96	Q	64	66	4.6	24.0	3.0	N/D	N/D	N/D	31.6	N/D	N/D	N/D	N/D	N/D	0.0	63.2
U4Q01101F	544698.00	1536885.00	May-96	Q	4	6	65.0	12.0	75.0	0.5	N/D	N/D	152.5	N/D	N/D	N/D	N/D	N/D	0.0	305.0
U4Q01102F	544842.00	1536861.00	May-96	Q	6	8	7.7	5.4	110.0	0.5	N/D	N/D	123.6	N/D	N/D	N/D	N/D	N/D	0.0	247.2
U4Q01103F	544842.00	1536861.00	May-96	Q	8	10	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01104F	544842.00	1536861.00	May-96	Q	10	12	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01105F	544842.00	1536861.00	May-96	Q	12	14	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01106F	544842.00	1536861.00	May-96	Q	14	16	N/D	N/D	3.4	N/D	N/D	N/D	3.4	N/D	N/D	N/D	N/D	N/D	0.0	6.8
U4Q01107F	544842.00	1536861.00	May-96	Q	22	24	1.0	9.8	69.0	N/D	N/D	N/D	79.8	N/D	N/D	N/D	N/D	N/D	0.0	159.6
U4Q01108F	544842.00	1536861.00	May-96	Q	26	28	N/D	1.9	N/D	N/D	N/D	N/D	1.9	N/D	N/D	N/D	N/D	N/D	0.0	3.8
U4Q01109F	544842.00	1536861.00	May-96	Q	30	32	6.4	4.6	1.8	N/D	N/D	N/D	12.8	N/D	N/D	N/D	N/D	N/D	0.0	25.6
U4Q01110F	544842.00	1536861.00	May-96	Q	34	36	1.6	N/D	N/D	N/D	N/D	N/D	1.6	N/D	N/D	N/D	N/D	N/D	0.0	3.2
U4Q01111F	544842.00	1536861.00	May-96	Q	38	40	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01112F	544842.00	1536861.00	May-96	Q	44	46	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01113F	544842.00	1536861.00	May-96	Q	50	52	1.4	N/D	N/D	N/D	N/D	N/D	1.4	N/D	N/D	N/D	N/D	N/D	0.0	2.8
U4Q01114F	544842.00	1536861.00	May-96	Q	54	56	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01115F	544842.00	1536861.00	May-96	Q	58	60	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01115FD	544842.00	1536861.00	May-96	Q	58	60	0.6	N/D	N/D	N/D	N/D	N/D	0.6	N/D	N/D	N/D	N/D	N/D	0.0	1.2
U4Q01116F	544842.00	1536861.00	May-96	Q	62	64	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01201F	544499.00	1536511.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01201FD	544499.00	1536511.00	May-96	Q	4	6	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01202F	544499.00	1536511.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4Q01202FD	544499.00	1536511.00	May-96	Q	6	8	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01203F	544499.00	1536511.00	May-96	Q	8	10	N/D	0.4	N/D	N/D	N/D	N/D	0.4	N/D	N/D	N/D	N/D	N/D	0.0	0.8
U4Q01204F	544499.00	1536511.00	May-96	Q	18	20	0.8	0.5	N/D	N/D	N/D	N/D	1.3	N/D	N/D	N/D	N/D	N/D	0.0	2.6
U4Q01205F	544499.00	1536511.00	May-96	Q	22	24	6.2	1.3	N/D	N/D	N/D	N/D	7.5	N/D	N/D	N/D	N/D	N/D	0.0	15.0
U4Q01205FD	544499.00	1536511.00	May-96	Q	22	24	6.2	5.7	N/D	N/D	N/D	N/D	11.9	N/D	N/D	N/D	N/D	N/D	0.0	23.8
U4Q01206F	544499.00	1536511.00	May-96	Q	26	28	N/D	4.2	N/D	N/D	N/D	0.3	4.5	N/D	N/D	N/D	N/D	N/D	0.0	9.0
U4Q01206FD	544499.00	1536511.00	May-96	Q	26	28	0.4	2.4	N/D	N/D	N/D	N/D	2.8	N/D	N/D	N/D	N/D	N/D	0.0	5.6
U4Q01207F	544499.00	1536511.00	May-96	Q	32	34	N/D	5.5	N/D	N/D	N/D	N/D	5.5	N/D	N/D	N/D	N/D	N/D	0.0	11.0
U4Q01207FD	544499.00	1536511.00	May-96	Q	32	34	7.3	8.5	N/D	N/D	N/D	N/D	15.8	N/D	N/D	N/D	N/D	N/D	0.0	31.6
U4Q01208F	544499.00	1536511.00	May-96	Q	38	40	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01209F	544499.00	1536511.00	May-96	Q	46	48	N/D	0.7	N/D	N/D	N/D	N/D	0.7	N/D	N/D	N/D	N/D	N/D	0.0	1.4
U4Q01210F	544499.00	1536511.00	May-96	Q	50	52	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01211F	544499.00	1536511.00	May-96	Q	54	56	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01212F	544499.00	1536511.00	May-96	Q	58	60	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01301F	544564.00	1536666.00	May-96	Q	24	26	1.0	1.2	N/D	N/D	N/D	N/D	2.2	N/D	N/D	N/D	N/D	N/D	0.0	4.4
U4Q01302F	544564.00	1536666.00	May-96	Q	30	32	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01303F	544564.00	1536666.00	May-96	Q	36	38	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01304F	544564.00	1536666.00	May-96	Q	42	44	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01305F	544564.00	1536666.00	May-96	Q	48	50	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4Q01306F	544564.00	1536666.00	May-96	Q	54	56	0.4	0.5	N/D	N/D	N/D	N/D	0.9	N/D	N/D	N/D	N/D	N/D	0.0	1.8
U4Q01307F	544564.00	1536666.00	May-96	Q	58	60	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4S00101F	544807.00	1536940.00	May-96	S	0	1	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4S00201F	544781.00	1536823.00	May-96	S	0	1	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4S00301F	544520.00	1536668.00	May-96	S	0	1	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4S00401F	544566.00	1536719.00	May-96	S	0	1	N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W00101F	544389.00	1536611.00	May-96	W			N/D	N/D	N/D	N/D	N/D	0.1	0.1	N/D	N/D	N/D	N/D	N/D	0.0	0.2
U4W00201F	544580.00	1536844.00	May-96	W			63.0	150.0	230.0	13.0	1.1	12.0	469.1	N/D	N/D	N/D	N/D	N/D	0.0	938.2
U4W00301F	544608.00	1536833.00	May-96	W			N/D	76.0	180.0	10.0	1.1	62.0	329.1	N/D	N/D	N/D	N/D	N/D	0.0	658.2
U4W00601F	544568.00	1536873.00	May-96	W			N/D	23.0	100.0	0.7	N/D	65.0	188.7	N/D	N/D	N/D	N/D	N/D	0.0	377.4
U4W00701F	544532.00	1536892.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	0.6	N/D	N/D	N/D	0.6	0.6
U4W00801F	544529.00	1536921.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W00901F	544544.00	1536944.00	May-96	W			N/D	N/D	2.3	N/D	N/D	0.5	2.8	N/D	N/D	N/D	N/D	N/D	0.0	5.6
U4W00901FD	544544.00	1536944.00	May-96	W			N/D	N/D	2.3	N/D	N/D	0.6	2.9	N/D	N/D	N/D	N/D	N/D	0.0	5.8
U4W01001F	544558.00	1536844.00	May-96	W			150.0	920.0	1200.0	46.0	6.4	280.0	2602.4	N/D	0.5	N/D	N/D	N/D	0.5	5205.3
U4W01101F	544565.00	1536806.00	May-96	W			N/D	25.0	94.0	1.2	1.0	12.0	133.2	N/D	1.0	N/D	N/D	N/D	1.0	267.4
U4W01201F	544526.00	1536790.00	May-96	W			N/D	5.6	180.0	0.7	0.9	83.0	270.2	N/D	7.2	N/D	N/D	N/D	7.2	547.6
U4W01301F	544510.00	1536753.00	May-96	W			0.6	97.0	500.0	6.8	1.0	23.0	628.4	N/D	N/D	N/D	N/D	N/D	0.0	1256.8
U4W01401F	544475.00	1536728.00	May-96	W			2.8	33.0	42.0	N/D	N/D	5.8	83.6	N/D	N/D	N/D	N/D	N/D	0.0	167.2
U4W01501F	544470.00	1536698.00	May-96	W			N/D	26.0	74.0	0.7	N/D	0.6	101.3	N/D	N/D	N/D	N/D	N/D	0.0	202.6
U4W01601F	544457.00	1536689.00	May-96	W			1.6	5.1	N/D	N/D	N/D	N/D	6.7	N/D	N/D	N/D	N/D	N/D	0.0	13.4
U4W01701F	544446.00	1536656.00	May-96	W			N/D	0.9	N/D	N/D	N/D	N/D	0.9	N/D	6.0	N/D	N/D	N/D	6.0	7.8
U4W01801F	544428.00	1536627.00	May-96	W			N/D	0.5	N/D	N/D	N/D	N/D	0.5	N/D	17.0	N/D	N/D	N/D	17.0	18.0
U4W01801FD	544428.00	1536627.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	30.0	N/D	N/D	N/D	30.0	30.0
U4W01901F	544528.00	1536841.00	May-96	W			N/D	N/D	34.0	N/D	N/D	13.0	47.0	N/D	N/D	N/D	N/D	N/D	0.0	94.0
U4W02001F	544541.00	1536868.00	May-96	W			N/D	N/D	15.0	N/D	N/D	7.6	22.6	N/D	N/D	N/D	N/D	N/D	0.0	45.2
U4W02101F	544513.00	1536821.00	May-96	W			0.6	3.7	29.0	N/D	N/D	6.8	40.1	N/D	N/D	N/D	N/D	N/D	0.0	80.2
U4W02201F	544499.00	1536794.00	May-96	W			0.9	2.1	6.1	N/D	N/D	N/D	9.1	N/D	N/D	N/D	N/D	N/D	0.0	18.2
U4W02301F	544517.00	1536872.00	May-96	W			N/D	N/D	27.0	N/D	N/D	8.6	35.6	N/D	N/D	N/D	N/D	N/D	0.0	71.2

Sample No.	EASTING	NORTHING	Date sampled	medium	depth(u)	depth(l)	PCE	TCE	C-1,2-DCE	T-1,2-DCE	1,1-DCE	VC	T. CHLOR.	BENZENE	TOLUENE	ETHYLB.	m/p XYL.	O XYL.	BTEX	TOT VOCs
U4W02401F	544478.00	1536772.00	May-96	W			4.7	2.0	4.3	N/D	N/D	N/D	11.0	N/D	N/D	N/D	N/D	N/D	0.0	22.0
U4W02501F	544463.00	1536747.00	May-96	W			N/D	16.0	26.0	N/D	N/D	N/D	42.0	N/D	N/D	N/D	N/D	N/D	0.0	84.0
U4W02601F	544444.00	1536723.00	May-96	W			N/D	9.9	23.0	N/D	N/D	N/D	32.9	N/D	N/D	N/D	N/D	N/D	0.0	65.8
U4W02601FD	544444.00	1536723.00	May-96	W			N/D	9.8	23.0	N/D	N/D	N/D	32.8	N/D	N/D	N/D	N/D	N/D	0.0	65.6
U4W02701F	544433.00	1536700.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W02801F	544422.00	1536677.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W02901F	544413.00	1536654.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03001F	544491.00	1536897.00	May-96	W			N/D	N/D	2.8	N/D	N/D	0.3	3.1	N/D	N/D	N/D	N/D	N/D	0.0	6.2
U4W03101F	544505.00	1536849.00	May-96	W			0.4	N/D	N/D	N/D	N/D	1.5	1.9	N/D	N/D	N/D	N/D	N/D	0.0	3.8
U4W03201F	544492.00	1536822.00	May-96	W			N/D	1.0	13.0	N/D	N/D	8.5	22.5	N/D	N/D	N/D	N/D	N/D	0.0	45.0
U4W03301F	544428.00	1536844.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03301FD	544428.00	1536844.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03401F	544409.00	1536799.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03501F	544393.00	1536758.00	May-96	W			N/D	0.7	N/D	N/D	N/D	N/D	0.7	N/D	N/D	N/D	N/D	N/D	0.0	1.4
U4W03502F	544393.00	1536758.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03601F	544380.00	1536705.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03602F	544380.00	1536705.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03701F	544358.00	1536664.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03702F	544358.00	1536664.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	0.4	N/D	N/D	N/D	0.4	0.4
U4W03801F	544361.00	1536841.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03802F	544361.00	1536841.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03901F	544338.00	1536795.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W03902F	544338.00	1536795.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04001F	544441.00	1536888.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04002F	544441.00	1536888.00	May-96	W			N/D	N/D	7.8	N/D	N/D	3.5	11.3	N/D	0.9	N/D	N/D	N/D	0.9	23.5
U4W04101F	544337.00	1536745.00	May-96	W			N/D	0.5	3.1	N/D	N/D	0.8	4.4	N/D	N/D	N/D	N/D	N/D	0.0	8.8
U4W04102F	544337.00	1536745.00	May-96	W			N/D	N/D	2.7	N/D	N/D	0.4	3.1	N/D	N/D	N/D	N/D	N/D	0.0	6.2
U4W04102FD	544337.00	1536745.00	May-96	W			N/D	0.5	3.0	N/D	N/D	0.5	4.0	N/D	N/D	N/D	N/D	N/D	0.0	8.0
U4W04201F	544382.00	1536632.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04301F	543989.00	1536792.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04302F	543989.00	1536792.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04401F	544384.00	1536877.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04402F	544384.00	1536877.00	May-96	W			N/D	N/D	4.7	N/D	N/D	1.3	6.0	N/D	N/D	N/D	N/D	N/D	0.0	12.0
U4W04501F	544451.00	1536627.00	May-96	W			1.1	N/D	N/D	N/D	N/D	N/D	1.1	N/D	N/D	N/D	N/D	N/D	0.0	2.2
U4W04502F	544451.00	1536627.00	May-96	W			N/D	N/D	1.6	N/D	N/D	0.3	1.9	N/D	N/D	N/D	N/D	N/D	0.0	3.8
U4W04601F	544178.00	1536756.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04602F	544178.00	1536756.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04701F	544347.00	1536909.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04702F	544347.00	1536909.00	May-96	W			N/D	N/D	3.3	N/D	N/D	0.6	3.9	N/D	N/D	N/D	N/D	N/D	0.0	7.8
U4W04801F	544310.00	1536866.00	May-96	W			N/D	N/D	N/D	N/D	N/D	N/D	0.0	N/D	N/D	N/D	N/D	N/D	0.0	0.0
U4W04802F	544310.00	1536866.00	May-96	W			N/D	N/D	5.6	N/D	N/D	1.3	6.9	N/D	N/D	N/D	N/D	N/D	0.0	13.8

Notes: D = duplicate sample.
N/D = Non-detect.
N/A = Not analyzed.

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/2/96

SAMPLE ID	U4Y00101F		U4R00101F		U4R00201F		POTABLEH20		U4W00101F	
1/%Solids	1		1		1		1		1	
DF	1		1		1		1		1	
Vinyl Chloride	0.1		0.1		0.1		0.1	U	0.1	
1,1-Dichloroethene	0.7		0.6		0.4		1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/3/96

SAMPLE ID	U4Y00201F		U4D00101F		ZSPRINGF		CSPRINGF	
1/%Solids	1		1.38		1		1	
DF	1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	US
1,1-Dichloroethene	1.0		1.4	U	1.0	U	1.0	US
t-1,2-Dichloroethene	0.5	U	0.7	U	0.5	U	0.5	US
c-1,2-Dichloroethene	2.0	U	2.8	U	2.0	U	2.0	US
Trichloroethene	0.5	U	0.7	U	0.5	U	0.5	US
Tetrachloroethene	0.5	U	0.7	U	0.5	U	0.5	US
Benzene	0.5	U	0.7	U	0.5	U	0.5	US
Toluene	0.5	U	0.7	U	0.5	U	0.5	US
Ethylbenzene	0.5	U	0.7	U	0.5	U	0.5	US
m/p-Xylene	0.5	U	0.7	U	0.5	U	0.5	US
o-Xylene	0.5	U	0.7	U	0.5	U	0.5	US

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/6/96

SAMPLE ID	U4Y00301F	
1/%Solids	1	
DF	1	
Vinyl Chloride	0.1	U
1,1-Dichloroethene	1.0	U
t-1,2-Dichloroethene	0.5	U
c-1,2-Dichloroethene	2.0	U
Trichloroethene	0.5	U
Tetrachloroethene	0.5	U
Benzene	0.5	U
Toluene	0.5	U
Ethylbenzene	0.5	U
m/p-Xylene	0.5	U
o-Xylene	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/7/96

SAMPLE ID	U4Y00401F		U4R00401F		U4W00201F		U4Y00501F		U4W00301F		U4D00201F		TB0002F		U4W00601F		U4D00601F	
1/%Solids	1		1		1		1		1		1.23		1		1		8.55	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.13		0.12		12		0.2		62	E	0.4		0.1	U	65	E	95	
1,1-Dichloroethene	0.7		0.6		1.1		1.0	U	1.1		1.2	U	1.0	U	1.0	U	8.6	U
t-1,2-Dichloroethene	0.5	U	0.5	U	13		0.5	U	10		2.1		0.5	U	0.7		5.6	
c-1,2-Dichloroethene	2.0	U	2.0	U	230	E	2.0	U	180	E	110	E	2.0	U	100	E	750	E
Trichloroethene	0.5	U	0.5	U	150	E	0.5	U	76	E	220	E	0.5	U	23		27	
Tetrachloroethene	0.5	U	0.5	U	63	E	0.5	U	0.5	U	92	E	0.5	U	0.5	U	4.3	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U	4.3	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U	4.3	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U	4.3	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U	4.3	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U	4.3	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/7/96

SAMPLE ID	U4D00301F	U4D00301FQ
1/%Solids	1.22	
DF	1	
Vinyl Chloride	0.1	U
1,1-Dichloroethene	1.2	U
t-1,2-Dichloroethene	1.0	
c-1,2-Dichloroethene	92	E
Trichloroethene	150	E
Tetrachloroethene	1.6	
Benzene	0.6	U
Toluene	0.6	U
Ethylbenzene	0.6	U
m/p-Xylene	0.6	U
o-Xylene	0.6	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/8/96

SAMPLE ID	U4D00502F		U4D00501F		U4D00402F		U4D00401F		U4R00501F		U4W00701F		U4W00801F		U4D00701F		U4D00702F	
1/%Solids	1.20		1.35		1.22		1.60		1		1		1		1		1.22	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	US	0.1	U	0.2	US	0.1	U	0.1	U	0.1	U	0.1	US	0.1	U
1,1-Dichloroethene	1.2	U	1.4	US	1.2	U	1.6	US	1.0	U	1.0	U	1.0	U	1.0	US	1.2	U
t-1,2-Dichloroethene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U
c-1,2-Dichloroethene	2.4	U	2.7	US	2.4	U	3.2	US	2.0	U	2.0	U	2.0	U	2.0	US	2.4	U
Trichloroethene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	3.7	
Tetrachloroethene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U
Benzene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U
Toluene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.6		0.5	U	11	US	0.6	U
Ethylbenzene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U
m/p-Xylene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U
o-Xylene	0.6	U	0.7	US	0.6	U	0.8	US	0.5	U	0.5	U	0.5	U	0.5	US	0.6	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/8/96

SAMPLE ID	U4D00801F		U4D00802F		U4W00901F		U4W00901FD		U4W01001F		U4W01001F 1:10		U4W01101F		U4D00901F		U4D00901FD	
1/%Solids	3.45		1.25		1		1		1		1		1		1.35		1.40	
DF	1		1		1		1		1		10		1		1		1	
Vinyl Chloride	0.3	US	0.1	U	0.5		0.6		150	E	280		12		0.1	U	0.1	U
1,1-Dichloroethene	3.5	US	1.3	U	1.0	U	1.0	U	6.4		10	U	1.0		1.4	U	1.4	U
t-1,2-Dichloroethene	1.7	US	0.6	U	0.5	U	0.5	U	46		35		1.2		0.7	U	0.7	U
c-1,2-Dichloroethene	6.9	US	2.5	U	2.3		2.3		310	E	1200	E	94	E	2.2		2.8	U
Trichloroethene	1.7	US	1.1		0.5	U	0.5	U	240	E	920	E	25		0.7	U	0.6	
Tetrachloroethene	1.7	US	0.6	U	0.5	U	0.5	U	79	E	150		0.5	U	0.7	U	0.7	U
Benzene	1.7	US	0.6	U	0.5	U	0.5	U	0.5	U	5.0	U	0.5	U	0.7	U	0.7	U
Toluene	1.7	US	0.6	U	0.5	U	0.5	U	0.5		5.0	U	1.0		1.6		0.7	U
Ethylbenzene	1.7	US	0.6	U	0.5	U	0.5	U	0.5	U	5.0	U	0.5	U	0.7	U	0.7	U
m/p-Xylene	1.7	US	0.6	U	0.5	U	0.5	U	0.5	U	5.0	U	0.5	U	0.7	U	0.7	U
o-Xylene	1.7	US	0.6	U	0.5	U	0.5	U	0.5	U	5.0	U	0.5	U	0.7	U	0.7	U

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/8/96

SAMPLE ID	U4D01101F		U4D01102F		U4D01001F		U4D01001FR	
1/%Solids	1.73		1.21		3.97		3.97	
DF	1		1		1		1250	
Vinyl Chloride	1.3		0.1	U	13		500	U
1,1-Dichloroethene	1.7	U	1.2	U	4.0	U	5000	U
t-1,2-Dichloroethene	0.9	U	0.6	U	35		2500	U
c-1,2-Dichloroethene	38		22		500	E	9900	U
Trichloroethene	3.6		3.8		1900	E	53,000	
Tetrachloroethene	0.9	U	0.6	U	1900	E	94,000	
Benzene	0.9	U	0.6	U	2.0	U	2500	U
Toluene	0.9	U	0.6	U	3.3		2500	U
Ethylbenzene	0.9	U	0.6	U	2.0	U	2500	U
m/p-Xylene	0.9	U	0.6	U	2.0	U	2500	U
o-Xylene	1.3		10		1.9		2500	U

Note -concentrations are in ppb, dry weight
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/9/96

SAMPLE ID	U4T00301F		U4R00601F		U4W01201F		U4W01301F		U4D01201F		U4D01301F		U4D01302F		U4W01601F		U4W01401F	
1/%Solids	1		1		1		1		4.26		2.36		1.33		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	83		23		53	S	0.2	US	0.1	U	0.1	U	5.8	
1,1-Dichloroethene	1.0	U	1.0	U	0.9		1.0	U	4.3	US	2.4	US	1.3	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.7		6.8		28	S	6.8	S	1.7		0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	180		500	E	3000	ES	700	ES	220		2.0	U	42	
Trichloroethene	0.5	U	0.5	U	5.6		97		1400	ES	360	S	79		5.1		33	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.6		43	S	22	S	0.9		1.6		2.8	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	2.1	US	1.2	US	0.7	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	7.2		0.5	U	2.3	S	1.2	US	0.7	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	2.1	US	1.2	US	0.7	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	2.1	US	1.2	US	0.7	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	2.1	US	1.2	US	0.7	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/10/96

SAMPLE ID	U4T00401F		U4R00801F		U4T00501F		U4R00701F		U4W01501F		U4D01501F		U4D01502F		U4D01601F		U4D01602F	
1/%Solids	1		1		1		1		1		1.95		1.26		1.66		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.6		0.2	U	0.1	U	0.2	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.3	U	1.7	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	J	1.0	UJ	0.6	UJ	0.8	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	74		38		10		3.3	U	2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	26		56		13		0.7		0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.4		0.6	U	1.0		0.7	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.0	U	0.6	U	0.8	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.4		0.6	U	0.8	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.0	U	0.6	U	0.8	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.0	U	0.6	U	0.8	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.0	U	0.6	U	0.8	U	0.5	U

Note -concentrations are in ppb, dry weight
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/10/96

SAMPLE ID	U4D01801F		U4D01802F		U4D01701F		U4D01702F		U4R00801F1		U4W01801F		U4W01701F		U4S00101F		U4S00201F
1/%Solids	5.0		1.21		4.2		1.26		1		1		1		1.13		1.1
DF	1		1		1		1		1		1		1		1		1
Vinyl Chloride	0.5	US	0.2		0.5	S	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
1,1-Dichloroethene	5.0	US	1.2	U	4.2	US	1.3	U	1.0	U	1.0	U	1.0	U	1.1	U	1.1
t-1,2-Dichloroethene	2.5	USJ	0.6	UJ	2.1	USJ	0.6	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.6	UJ	0.6
c-1,2-Dichloroethene	7.9	S	2.4	U	8.4	US	2.5	U	2.0	U	2.0	U	2.0	U	2.3	U	2.2
Trichloroethene	10	S	1.3		2.1	US	0.6	U	0.5	U	0.5		0.9		0.6	U	0.6
Tetrachloroethene	20	S	0.6	U	2.1	US	0.6	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6
Benzene	2.5	US	0.6	U	2.1	US	0.6	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6
Toluene	550	S	0.6	U	150	S	0.6	U	0.5	U	17		6		0.6	U	0.6
Ethylbenzene	2.5	US	0.6	U	2.1	US	0.6	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6
m/p-Xylene	2.5	US	0.6	U	2.1	US	0.6	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6
o-Xylene	2.5	US	0.6	U	2.1	US	0.6	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/10/96

	SAMPLE ID	U4S00301F		U4S00401F		U4D01402F		U4D01401F	
	1/%Solids	1.82		1.95		1.26		2.52	
	DF	1		1		1		1	
U	**Vinyl Chloride**	0.2	US	0.2	US	0.1	U	0.3	U
U	**1,1-Dichloroethene**	1.8	US	2.0	US	1.3	U	2.5	U
UJ	**t-1,2-Dichloroethene**	0.9	USJ	1.0	USJ	0.6	UJ	1.3	UJ
U	**c-1,2-Dichloroethene**	3.6	US	3.9	US	6.1		53	
U	**Trichloroethene**	0.9	US	1.0	US	7.8		72	
U	**Tetrachloroethene**	0.9	US	1.0	US	0.6	U	1.8	
U	**Benzene**	0.9	US	1.0	US	0.6	U	1.3	U
U	**Toluene**	0.9	US	1.0	US	0.6	U	1.3	U
U	**Ethylbenzene**	0.9	US	1.0	US	0.6	U	1.3	U
U	**m/p-Xylene**	0.9	US	1.0	US	0.6	U	1.3	U
U	**o-Xylene**	0.9	US	1.0	US	0.6	U	1.3	U

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/11/96

SAMPLE ID	U4R00901F		U4R01001F		U4R01011F		U4R01201F		U4W01801FD		U4W01901F		U4W02001F		U4W02101F		U4W02201F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	13		7.6		6.8		0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	34		15		29		6.1	
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3.7		2.1	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6		0.9	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	30		0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/11/96

SAMPLE ID	U4T00701F		U4T00801F		U4Q00101F		U4Q00102F		U4W02301F		U4Q00103F		U4Q00104F		U4Q00105F		U4W02401F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		10		10		10		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	8.6		1.0	U	1.0	U	1.0	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0		1.0	U	1.0	U	10	U	10	U	10.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.4		2.5		0.5	U	5.0	U	5.0	U	5.0	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	180		570	E	27		410		370		830		4.3	
Trichloroethene	0.5	U	0.5	U	270	E	950	E	0.5	U	110		93		110		2.0	
Tetrachloroethene	0.5	U	0.5	U	1.6		71		0.5	U	5.0	U	5.0	U	5.0	U	4.7	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	5.0	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	5.0	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	5.0	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	110		0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	16		0.5	U

Note -concentrations are in ppb, dry weight
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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/11/96

SAMPLE ID	U4D01802FD		U4Q00101FR		U4Q00102FR		U4R01301F		U4R01401F	
1/%Solids	1.21		1		1		1		1	
DF	1		10		10		1		1	
Vinyl Chloride	0.1	U	1.0	U	1.0	U	0.1	U	0.1	U
1,1-Dichloroethene	1.2	U	10	U	10	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.4	U	230		540		2.0	U	2.0	U
Trichloroethene	1.2		420		990		0.5	U	0.5	U
Tetrachloroethene	0.8		5.0	U	75		0.5	U	0.5	U
Benzene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U
Toluene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U
Ethylbenzene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U
m/p-Xylene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U
o-Xylene	0.6	U	5.0	U	5.0	U	0.5	U	0.5	U

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BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/12/96

SAMPLE ID	U4W02501F		U4R01501F		U4W02601		U4W02601FD		U4D01901F		U4D01901FR		U4D02001F		U4D02101F		U4D02201F	
1/%Solids	1		1		1		1		1.35		1.35		1.22		1.32		1.86	
DF	1		1		1		1		1		10		10		5		5	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	1.5		1.4	U	1.2	U	0.7	U	0.9	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.4	U	14	U	12	U	6.6	U	9.3	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	2.4	J	6.8	UJ	6.1	UJ	3.3	UJ	4.7	UJ
c-1,2-Dichloroethene	26		2.0	U	23		23		160		110		24	U	14		19	U
Trichloroethene	16		0.5	U	9.9		9.8		930	E	800		7.2		410		6.6	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	78		31		6.1	U	4.9		200	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	6.8	U	6.1	U	3.3	U	4.7	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	6.8	U	6.1	U	3.3	U	4.7	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	6.8	U	6.1	U	3.3	U	4.7	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	6.8	U	6.1	U	3.3	U	4.7	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	6.8	U	6.1	U	3.3	U	4.7	U

Note -concentrations are in ppb, dry weight
- -U qualifier is added when result is less than reporting limit
- -J qualifier is added when result is estimated
- -S qualifier is added for surrogate outside of accepted limits
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/12/96

SAMPLE ID	U4D02001FR		U4D02201R		U4D02101FR		U4D02301F		U4D02401F		U4D02501F		U4D02601F		U4D02601FD	
1/%Solids	1.22		1.86		1.32		1.62		3.75		1.77		1.72		1.72	
DF	1		1		1		5		5		5		5		5	
Vinyl Chloride	0.1	U	0.2	U	0.1	U	0.2	U	1.9	U	0.9	U	0.9	U	0.9	U
1,1-Dichloroethene	1.2	U	1.9	U	1.2		8.1	U	19	U	8.9	U	8.6	U	8.6	U
t-1,2-Dichloroethene	0.6	UJ	0.9	UJ	0.7	UJ	4.1	UJ	9.4	UJ	4.4	UJ	4.3	UJ	4.3	UJ
c-1,2-Dichloroethene	3.0		3.7	U	36		31		41		20		80		25	
Trichloroethene	9.0		4.8		460	E	3.9		100		42		130		42	
Tetrachloroethene	0.6	U	100		18		4.1	U	1400		4.4		4.3	U	4.3	U
Benzene	0.6	U	0.9	U	0.7	U	4.1	U	9.4	U	4.4	U	4.3	U	4.3	U
Toluene	0.6	U	0.9	U	0.7	U	4.1	U	9.4	U	4.4	U	4.3	U	4.3	U
Ethylbenzene	0.6	U	0.9	U	0.7	U	4.1	U	9.4	U	4.4	U	4.3	U	4.3	U
m/p-Xylene	0.6	U	0.9	U	0.7	U	4.1	U	9.4	U	4.4	U	4.3	U	4.3	U
o-Xylene	0.6	U	0.9	U	0.7	U	4.1	U	9.4	U	4.4	U	4.3	U	4.3	U

Note -concentrations are in ppb, dry weight
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/13/96

SAMPLE ID	U4W02701F		U4W02801F		U4W02901F		U4W03001F		U4G00101F		U4G00201F		U4Q00201F		U4Q00202F		U4Q00203F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		10		10		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.3		1.0	U	1.0	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	10	U	10	U	1	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	25	J	5	J	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.8		1600		530		2	U	2.0	U	3.2	
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	3000	E	5800	E	0.5		0.5	U	1.4	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	6.4		590		0.5	U	0.5	U	2.1	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	5.0	U	5.0	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/13/96

SAMPLE ID	U4Q00301F		U4Q00302F		U4Q00303F		U4Q00304F		U4Q00305F		U4Q00305FD		U4R01601F		U4R01701F		U4R01801F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/13/96

SAMPLE ID	U4R01901F		U4R02001F		U4W03101F		U4W03201F		U4Q00402F		U4Q00403F	
1/%Solids	1		1		1		1		1		1	
DF	1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	1.5		8.5		0.1	U	3.0	
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.6	
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	100	J
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	13		5.8		1100	E
Trichloroethene	0.5	U	0.5	U	0.5	U	1.0		0.5	U	270	E
Tetrachloroethene	0.5	U	0.5	U	0.4		0.5	U	0.5	U	1.7	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/14/96

SAMPLE ID	U4Q00201F		U4Q00501F		U4Q00502F		U4Q00404F		U4Q00401F		U4D02701F		U4D02801F		U4D02901F		U4D03001	
1/%Solids	1		1		1		1		1		1.3		7.19		1.4		1.24	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.7	UJ	0.1	UJ	0.1	UJ
1,1-Dichloroethene	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.3	UJ	7.2	UJ	1.4	UJ	1.2	UJ
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	19	J	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ
c-1,2-Dichloroethene	2.0	UJ	2.0	UJ	3.5	J	640	E	2.0	UJ	11	J	14	UJ	2.8	UJ	2.5	UJ
Trichloroethene	0.5	UJ	0.5	UJ	7.1	J	680	E	0.5	UJ	17	J	4.0	J	0.7	UJ	0.6	UJ
Tetrachloroethene	0.5	UJ	0.5	UJ	0.5	UJ	8.1	J	0.5	UJ	1.1	J	3.6	UJ	0.7	UJ	0.6	UJ
Benzene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ
Toluene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ
Ethylbenzene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ
m/p-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ
o-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	3.6	UJ	0.7	UJ	0.6	UJ

Note -concentrations are in ppb, dry weight
- -U qualifier is added when result is less than reporting limit
- -J qualifier is added when result is estimated
- -S qualifier is added for surrogate outside of accepted limits
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/14/96

SAMPLE ID	U4D03101F		U4D03201F	
1/%Solids	1.34		1.88	
DF	1		1.0	
Vinyl Chloride	0.1	UJ	0.2	UJS
1,1-Dichloroethene	1.2	J	1.9	UJS
t-1,2-Dichloroethene	1.1	J	0.9	UJS
c-1,2-Dichloroethene	31	J	11	JS
Trichloroethene	210	J	74	JS
Tetrachloroethene	0.7	UJ	65	JS
Benzene	0.7	UJ	0.9	UJS
Toluene	0.7	UJ	0.9	UJS
Ethylbenzene	0.7	UJ	0.9	UJS
m/p-Xylene	0.7	UJ	0.9	UJS
***o*-Xylene**	0.7	UJ	0.9	UJS

Note -concentrations are in ppb, dry weight
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-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/15/96

correction of 5/13/96 data

SAMPLE ID	U4Q002001F		U4R02301F		U4502101F		U4Q00601F		U4Q00602F		U4Q00603F		U4Q00604F		U4Q00701F		U4Q00702F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	1.2		0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	5.4		54		3.8		2.0	
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	9.0		71		26		14	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.5		2.4		3.2		12	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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- -J qualifier is added when result is estimated
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- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/15/96

SAMPLE ID	U4Q00801F		U4Q00802F		U4D03501F		U4D03301F		U4D03401F		U4R02401F		U4W03301F		U4W03301FD		U4W03401F	
1/%Solids	1		1		1.3		1.3		1.3		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.3	U	1.3	U	1.3	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.7	UJ	0.7	UJ	0.7	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	5.7		2.6	U	2.6	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5	U	15		0.0	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.7	U	2.0		8.1		0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.7	U	0.7	U	0.7	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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-J qualifier is added when result is estimated
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/15/96

SAMPLE ID	U4W03501F		U4W03502F		U4W03601F		U4W03602F		U4W03701F		U4W03702F		U4D03601F		U4D0701F	
1/%Solids	1		1		1		1		1		1		1.24		1.25	
DF	1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.2	U	1.3	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.6	UJ	0.6	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.5	U	2.5	U
Trichloroethene	0.7		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4		0.6	U	0.6	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U

Note -concentrations are in ppb, dry weight
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- -S qualifier is added for surrogate outside of accepted limits
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/16/96

SAMPLE ID	U4R02601F		U4R02701F		U4Q00901F		U4R02801F		U4Q01002F		U4Q01001F		U4Q01003F		U4Q00902F		U4R02901F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.5		2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3.4		0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2.8		0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
- -U qualifier is added when result is less than reporting limit
- -J qualifier is added when result is estimated
- *-S qualifier is added for surrogate outside of accepted limits*
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/16/96

SAMPLE ID	U4W03801F		U4W03802F		U4W03901F		U4W03902F		U4Q01101F		U4Q01004F		U4Q01005F	
1/%Solids	1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5		0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	75		12		2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	12		4.8		0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	65		0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/20/96

SAMPLE ID	U4Q01006F		U4Q01102F		U4Q01103F		U4Q01104F		U4Q01105F		U4Q01106F		U4D03801F		U4D03901F	
1/%Solids	1		1		1		1		1		1		2.5		1.27	
DF	1		1		1		1		1		1		1		1	
Vinyl Chloride	5.0		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.3	U	0.1	US
1,1-Dichloroethene	0.9		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.5	U	1.3	US
t-1,2-Dichloroethene	69	J	0.5	J	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	1.3	UJ	0.6	UJS
c-1,2-Dichloroethene	800	E	110		2.0	U	2.0	U	2.0	U	3.4		5.0	U	2.5	US
Trichloroethene	84		5.4		0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
Tetrachloroethene	0.5	U	7.7		0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.3	U	0.6	US

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/21/96

SAMPLE ID	U4D03901FR		U4R03201F		U4W04001F		U4W04002F		U4Q00106F		U4D04001F		U4W04101F		U4D04201F		U4R03101F	
1/%Solids	1.27		1		1		1		1		1.33		1		1.23		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	3.5		0.1	U	0.1	U	0.8		0.1	U	0.1	U
1,1-Dichloroethene	1.3	U	1.0	U	1.0	U	1.0	U	1.0	U	1.3	U	1.0	U	1.2	U	1.0	U
t-1,2-Dichloroethene	0.6	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	0.5	UJ	0.6	UJ	0.5	UJ
c-1,2-Dichloroethene	2.5	U	2.0	U	2.0	U	7.8		2.0	U	2.7	U	3.1		2.5	U	2.0	U
Trichloroethene	0.6	U	0.5	U	0.5	U	0.5	U	18		0.7	U	0.5		0.7		0.5	U
Tetrachloroethene	0.6	U	0.5	U	0.5	U	0.5	U	12		0.7	U	0.5	U	0.6	U	0.5	U
Benzene	0.6	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.5	U	0.6	U	0.5	U
Toluene	0.6	U	0.5	U	0.5	U	0.9		0.5	U	0.7	U	0.5	U	0.6	U	0.5	U
Ethylbenzene	0.6	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.5	U	0.6	U	0.5	U
m/p-Xylene	0.6	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.5	U	0.6	U	0.5	U
o-Xylene	0.6	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.5	U	0.6	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/21/96

SAMPLE ID	U4R03001F		U4W04102F		U4W04201F		U4W04301F		U4W04302F		U4Q00107F		U4D04201FD		U4W04102FD		U4W04301FD	
1/%Solids	1		1		1		1		1		1		1.23		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.4		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.5		0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.2	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.6	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.7		2.0	U	2.0	U	2.0	U	2.0	U	2.5	U	3.0		2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	11		0.6	U	0.5		0.5	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	8.8		0.6	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U
***m/p*-Xylene**	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/22/96

SAMPLE ID	U4T01401F		U4Q00108F		U4Q00109F		U4Q00110F		U4D04101F		U4D04301F		U4Q00111F		U4Q00112F		U4R03301F	
1/%Solids	1		1		1		1		1.35		3		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.3	US	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.4	U	3.0	US	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	1.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.7	U	6.0	US	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	3.1		1.2		0.5	U	0.7	U	1.5	US	0.5		0.5	U	0.5	U
Tetrachloroethene	0.5	U	9.4		3.5		0.5	U	0.7	U	1.5	US	1.5		0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	1.5	US	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	1.5	US	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	1.5	US	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	1.5	US	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.7	UJ	1.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ

Note -concentrations are in ppb, dry weight

- -U qualifier is added when result is less than reporting limit
- -J qualifier is added when result is estimated
- -S qualifier is added for surrogate outside of accepted limits
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/22/96

SAMPLE ID	U4R03401F		U4D04401F		U4Q00113F		U4Q00114F		U4Q00115F		U4Q00116F		U4Q00117F		U4W04401F		U4W04402F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	1.3	
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	4.7	
Trichloroethene	0.5	U	18		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	28		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/22/96

SAMPLE ID	U4Q00113FD		U4W04501F		U4W04502F		U4W04601F		U4W04602F		U4Q00118F		U4D04501F		U4D04601F		U4Q00119F	
1/%Solids	1		1		1		1		1		1		1.1		1.18		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.3		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.1	U	1.2	U	1.0	U
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.6	UJ	0.6	UJ	0.5	UJ
c-1,2-Dichloroethene	2.0	U	2.0	U	1.6		2.0	U	2.0	U	2.0	U	2.2	U	2.4	U	2.0	U
Trichloroethene	0.5	U	0.5		0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
Tetrachloroethene	0.5	U	1.1		0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	0.6	U	0.5	U
o-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.6	UJ	0.6	UJ	0.5	UJ

Note -concentrations are in ppb, dry weight
- -U qualifier is added when result is less than reporting limit
- -J qualifier is added when result is estimated
- -S qualifier is added for surrogate outside of accepted limits
- -B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/22/96

SAMPLE ID	U4Q00120F		U4Q00121F		U4Q00122F		U4R03501F
1/%Solids	1		1		1		1
DF	1		1		1		1
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0
t-1,2-Dichloroethene	0.5	UJ	0.5	UJ	0.5	UJ	0.5
c-1,2-Dichloroethene	2.0	U	2.5		2.0	U	2.0
Trichloroethene	0.5	U	0.9		0.5	U	0.5
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5
Benzene	0.5	U	0.5	U	0.5	U	0.5
Toluene	0.5	U	0.5	U	0.5	U	0.5
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5
o-Xylene	0.5	UJ	0.5	UJ	0.5	UJ	0.5

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/23/96

SAMPLE ID	U4R03601F		SBW01F		SBW01FR		U4Q00205F		U4Q00206F		U4Q00207F		U4Q00208F		U4Q00209F		U4Q00210F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	UJ	0.1	UJ	0.8	J	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	9.9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.6		0.5	U	0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	10		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/23/96

SAMPLE ID	U4Q00211F		U4W04702F		U4W04802F		U4W04701F		U4W04801F		U4D04701F		U4D04801F	
1/%Solids	1		1		1		1		1		1.32		1.34	
DF	1		1		1		1		1		1		1	
Vinyl Chloride	0.1	UJ	0.6	J	1.3	J	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.3	U	1.3	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	1.2	
c-1,2-Dichloroethene	2.0	U	3.3		5.6		2.0	U	2.0	U	2.6	U	160	
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U	0.7	U

Note -concentrations are in ppb, dry weight

-U qualifier is added when result is less than reporting limit

-J qualifier is added when result is estimated

-S qualifier is added for surrogate outside of accepted limits

-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/28/96

SAMPLE ID	U4Q00204F		U4Q00306F		U4Q00307F		U4Q00405F		U4Q00406F		U4Q00407F		U4Q00408F		U4Q00409F		U4Q00410F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1		0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4		0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	4.4		4.8		2.2		5.0		3.0		4.7	
Trichloroethene	0.5	U	0.5	U	0.5	U	190		270	E	160		310	E	130		180	
Tetrachloroethene	0.8		0.5	U	0.5	U	64		97		19		44		170		180	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4		0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4		0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	3.8		0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7		0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/28/96

SAMPLE ID	U4Q00411F		U4Q00412F		U4R03701F		U4R03801F	
1/%Solids	1		1		1		1	
DF	1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	4.2		2.0	U	2.0	U	2.0	U
Trichloroethene	56		11		0.5	U	0.5	U
Tetrachloroethene	130		120		0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/29/96

SAMPLE ID	U4Q00413F		U4Q00310F		U4Q00311F		U4G00301F		U4R04001FR		U4Q00414F		U4Q00415F		U4Q00416F		U4Q00417F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	19		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	710	E	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	12		0.5	U	0.5	U	1400	E	0.5		1.7		0.4		0.5	U	0.5	U
Tetrachloroethene	120		0.5	U	0.5	U	22		0.5	U	99		13		0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	3.1		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/29/96

SAMPLE ID	U4R04101F		U4Q00418F		U4Q00419F		U4Q00420F		U4Q00421F		U4Q00422F		U4Q00423F		U4Q00424F		U4Q00425F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.8		0.9		1.0		0.5	U	0.5	U	0.5	U	0.5	U	9.9	
Tetrachloroethene	0.5	U	0.8		2.8		4.9		1.0		0.9		0.8		4.4		220	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/29/96

SAMPLE ID	U4Q00426F		U4R03901F		U4G00401F		U4Q00510F		U4Q00509F		U4Q00508F		U4Q00507F		U4Q00506F		U4Q00505F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.2		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	1.2	
Trichloroethene	1.0		0.5	U	3.3		0.5	U	1.2		0.5	U	0.5	U	3.1		3.0	
Tetrachloroethene	4.3		0.4		3.4		0.5		1.7		0.4		0.4		48		300	E
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/29/96

SAMPLE ID	U4Q00504F		U4Q00503F		U4Q00308F		U4Q00309F		U4G00102F		U4G00202F		U4G00601F	
1/%Solids	1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	1.0		0.4		0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.1		1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	32		25		0.5	U
c-1,2-Dichloroethene	1.6		6.7		2.0	U	2.0	U	880	E	840	E	2.2	
Trichloroethene	5.0		23		0.5	U	0.5	U	450	E	1300	E	27	
Tetrachloroethene	300	E	950	E	10		0.8		1.5		120		22	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/30/96

SAMPLE ID	U4Q00309FD		U4R04201F		U4Q00506FD		U4Q00605F		U4G00501F		U4Q00407FD	
1/%Solids	1		1		1		1		1		1	
DF	1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1		0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	11		0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	1.9		570	E	2.0	U
Trichloroethene	0.5	U	0.5	U	2.5		10		330	E	0.5	U
Tetrachloroethene	0.5	U	0.5	U	50		2.0		8.4		0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/31/96

SAMPLE ID	U4Q00606F		U4Q00607F		U4Q01107F		U4Q01108F		U4Q01109F		U4Q01110F		U4Q01111F		U4Q01112F		U4Q01113F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	3.0		2.0	U	69		2.0	U	1.8		2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	13		0.5	U	9.8		1.9		4.6		0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	3.7		0.5	U	1.0		0.5	U	6.4		1.6		0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

5/31/96

SAMPLE ID	U4Q04301F		U4Y00601F		U4Q01114F		U4Q01115F		U4Q01115FD		U4Q01116F	
1/%Solids	1		1		1		1		1		1	
DF	1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.4		0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.6		0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
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-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/1/96

SAMPLE ID	U4Q01007F		U4Q01113FD		U4Y00601FD		U4Q01008F		U4Q01009F		U4Q01010F		U4Q01012F		U4Q01011F		U4Q01013F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	8.3		0.1	U	0.1	U	3		0.9		2.1		2.7		0.1	U	0.9	
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0		7.2		4.0		1.0	U
t-1,2-Dichloroethene	20		0.5	U	0.5	U	20		16		14		16		10		3.8	
c-1,2-Dichloroethene	800	E	2.0	U	2.0	U	790	E	550	E	100		150		65		54	
Trichloroethene	780	EJ	0.5	U	0.5	U	960	EJ	41	J	2000	EJ	3200	EJ	3800	EJ	1500	EJ
Tetrachloroethene	17		1.4		0.5	U	21		1500	EJ	43	J	290	EJ	2600	EJ	240	J
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/1/96

SAMPLE ID	U4Q01014F		U4Q01015F	
1/%Solids	1		1	
DF	1		1	
Vinyl Chloride	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U
c-1,2-Dichloroethene	3.9		2.0	U
Trichloroethene	190	J	15	J
Tetrachloroethene	45	J	3.4	J
Benzene	0.5	U	0.5	U
Toluene	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/2/96

SAMPLE ID	U4R04401FR		U4Q01020F		U4Q01019F		U4Q01016F		U4Q01021F		U4Q01022F		U4Q01023F		U4Q01024F		U4Q00701F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	1.0		0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.7		2.0	U	1.8		71	E	2.0	U	2.0	U	3.0		14	
Trichloroethene	0.5	U	45	E	33		14		60	E	18		8.4		24		28	E
Tetrachloroethene	0.5	U	4.9		4.0		3.4		7.2	E	9.1		1.3		4.6		24	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/3/96

SAMPLE ID	U4Q01017F		U4Q01018F		U4R04601F		U4Q00803F		U4Q00804F		U4Q00805F		U4Q00806F		U4Q00807F		U4Q00808F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.3	
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	1.8		2.0	U	2.0	U	3.2		2.7		2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	32		39		0.5	U	7.0		13		16		15		0.6		18	
Tetrachloroethene	1.2		17		0.5	U	15		7.0		0.5	U	11		0.5	U	5.2	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/3/96

SAMPLE ID	U4Q00809F	U4Q00903F	U4Q00904F	U4Q00905F	U4Q00906F	U4Q00906FD	U4Q00905FD	U4Q00904FD	U4Q00903FD
1/%Solids	1	1	1	1	1	1	1	1	1
DF	1	1	1	1	1	1	1	1	1
Vinyl Chloride	0.1 U	0.1 U	0.1 U	0.3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1-Dichloroethene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
t-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
c-1,2-Dichloroethene	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Trichloroethene	0.5	12	2.4	5.5	10	2.6	0.5 U	4.4	8.9
Tetrachloroethene	0.5	9.6	10	0.5 U	7.8	1.9	0.5 U	10	8.3
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m/p-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
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-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/4/96

SAMPLE ID	U4Q00907F		U4Q00908F		U4R04601F		U4Q00909F		U4Q01201F		U4Q01202F		U4Q01203F		U4Q01202FD		U4Q00910F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	1.0		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4		0.5	U	0.8	
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/4/96

SAMPLE ID	U4Q01201FD		U4Q01204F		U4Q01205F		U4Q01206F		U4Q01207F		U4Q01207FD		U4Q01206FD		U4Q01205FD	
1/%Solids	1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.3		0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.5		1.3		4.2		5.5		8.5		2.4		5.7	
Tetrachloroethene	0.5	U	0.8		6.2		0.5	U	0.5	U	7.3		0.4		6.2	
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
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-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/5/96

SAMPLE ID	U4Q01208F		U4Q01209F		U4Q01210F		U4Q01211F		U4Q01212F		U4Q01301F		U4Q01302F		U4Q01303F		U4Q01304F	
1/%Solids	1		1		1		1		1		1		1		1		1	
DF	1		1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Trichloroethene	0.5	U	0.7		0.5	U	0.5	U	0.5	U	1.2		0.5	U	0.5	U	0.5	U
Tetrachloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.0		0.5	U	0.5	U	0.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Note -concentrations are in ppb, dry weight
-U qualifier is added when result is less than reporting limit
-J qualifier is added when result is estimated
-S qualifier is added for surrogate outside of accepted limits
-B qualifier is added for blank contamination

BRAC OU4 NTC ORLANDO,FL

Preliminary Data Table

6/5/96

SAMPLE ID	U4Q01305F		U4Q01306F		U4Q01307F		U4R04701F		LDW-1F		LDW-3F		LDW-4F		LDW-2F	
1/%Solids	1		1		1		1		1		1		1.29		3.08	
DF	1		1		1		1		1		1		1		1	
Vinyl Chloride	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	30		0.3	U
1,1-Dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.3	U	3.1	U
t-1,2-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	1.5	U
c-1,2-Dichloroethene	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	12		19.0		6.2	U
Trichloroethene	0.5	U	0.5		0.5	U	0.5	U	0.5	U	170		1.8		1.5	U
Tetrachloroethene	0.5	U	0.4		0.5	U	0.5	U	0.5	U	18		0.8		1.5	U
Benzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	1.5	U
Toluene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	54.0		1.5	U
Ethylbenzene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	1.5	U
m/p-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	1.5	U
o-Xylene	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	1.5	U

Note -concentrations are in ppb, dry weight
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-B qualifier is added for blank contamination

APPENDIX L

OFFSITE LABORATORY ANALYTICAL SUMMARY TABLES

Appendix L(a). Summary of Off-Site Laboratory Surface Water Analytical Results
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4W00201		U4W01201		U4W03101		U4W03401		U4W03401D	
Lab ID	MA882004		MA900001		MA913003		MA942003		MA942004	
Sampling Date	7-May-96		9-May-96		13-May-96		15-May-96		15-May-96	
1,1,1-Trichloroethane	150	U	10	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	150	U	10	U	1	U	1	U	1	U
1,1,2-Trichloroethane	150	U	10	U	1	U	1	U	1	U
1,1-Dichloroethane	150	U	10	U	1	U	1	U	1	U
1,1-Dichloroethene	150	U	10	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	150	U	10	U	1	U	1	U	1	U
1,2-Dibromoethane	150	U	10	U	1	U	1	U	1	U
1,2-Dichlorobenzene	150	U	10	U	1	U	1	U	1	U
1,2-Dichloroethane	150	U	10	U	1	U	1	U	1	U
1,2-Dichloropropane	150	U	10	U	1	U	1	U	1	U
1,3-Dichlorobenzene	150	U	10	U	1	U	1	U	1	U
1,4-Dichlorobenzene	150	U	10	U	1	U	1	U	1	U
2-Butanone	750	R	7	J	5	UR	5	UR	5	UR
2-Chloroethylvinylether	NA		NA		NA		NA		NA	
2-Hexanone	750	U	50	U	5	U	5	U	5	U
4-Methyl-2-pentanone	750	U	50	U	5	U	5	U	5	U
Acetone	480	J	38	J	2	R	2	UR	2	UR
Benzene	150	U	10	U	1	U	1	U	1	U
Bromochloromethane	150	U	10	U	1	U	1	U	1	U
Bromodichloromethane	150	U	10	U	1	U	1	U	1	U
Bromoform	150	U	10	U	1	U	1	U	1	U
Bromomethane	150	U	10	U	1	U	1	U	1	U
Carbon disulfide	150	U	10	U	1	U	1	U	1	U
Carbon tetrachloride	150	U	10	U	1	U	1	U	1	U
Chlorobenzene	150	U	10	U	1	U	1	U	1	U
Chloroethane	150	U	10	U	1	U	1	U	1	U
Chloroform	150	U	10	U	1	U	1	U	1	U
Chloromethane	47	J	10	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	2300		170		1		1		1	
cis-1,3-Dichloropropene	150	U	10	U	1	U	1	U	1	U
Dibromochloromethane	150	U	10	U	1	U	1	U	1	U
Dichlorodifluoromethane	NA		NA		NA		NA		NA	
Ethylbenzene	150	U	10	U	1	U	1	U	1	U
Methylene chloride	47	J	20	U	2	U	2	U	2	U

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Appendix L(a). Summary of Off-Site Laboratory Surface Water Analytical Results
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4W00201		U4W01201		U4W03101		U4W03401		U4W03401D	
Lab ID	MA882004		MA900001		MA913003		MA942003		MA942004	
Sampling Date	7-May-96		9-May-96		13-May-96		15-May-96		15-May-96	
Styrene	150	U	10	U	1	U	1	U	1	U
Tetrachloroethene	54	J	10	U	1	U	1	U	1	U
Toluene	150	U	7	J	1	J	1	U	1	U
trans-1,2-Dichloroethene	150	U	10	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	150	U	10	U	1	U	1	U	1	U
Trichloroethene	800		5	J	1	U	1	U	1	U
Trichlorofluoromethane	NA		NA		NA		NA		NA	
Vinyl chloride	150	U	54		1	J	1	U	1	U
Xylene (total)	150	U	10	U	1	U	1	U	1	U

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Appendix L(b). Summary of Off-Site Laboratory Sediment Analytical Results
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4D00201				U4D01201				U4D03101		U4D03501		U4D03501D		U4D04201	
Lab ID	MA882006		MA882006DL		MA900002		MA900002DL		MA913004		MA942005		MA942006		MA964002	
Sampling Date	7-May-96		7-May-96		9-May-96		9-May-96		13-May-96		15-May-96		15-May-96		21-May-96	
1,1,1-Trichloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,1,2,2-Tetrachloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,1,2-Trichloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,1-Dichloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,1-Dichloroethene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,2-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,2-Dichloroethene (total)	46		37	DR	130		150	DR	5	J	2	J	12	U	12	U
1,2-Dichloropropane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
1,3-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
1,4-Dichlorobenzene	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
2-Chloroethylvinylether	NA		NA		NA		NA		NA		NA		NA		NA	
2-Hexanone	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
4-Methyl-2-pentanone	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Acetone	20		55	DR	21	J	23	DR	26	U	12	U	12	U	12	U
Benzene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Bromodichloromethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Bromoform	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Bromomethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Carbon disulfide	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Carbon tetrachloride	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Chlorobenzene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Chloroethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Chloroform	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Chloromethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
cis-1,2-Dichloroethene	NA		NA		NA		NA		NA		NA		NA		NA	
cis-1,3-Dichloropropene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Dibromochloromethane	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Dichlorodifluoromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Methylene chloride	12	J	31	DR	5	J	36	UR	25	U	2	J	2	J	12	U
Styrene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Tetrachloroethene	340	ER	300	D	24	J	26	DR	48		12	U	12	U	12	U

Appendix L(b). Summary of Off-Site Laboratory Sediment Analytical Results
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4D00201				U4D01201				U4D03101		U4D03501		U4D03501D		U4D04201	
Lab ID	MA882006		MA882006DL		MA900002		MA900002DL		MA913004		MA942005		MA942006		MA964002	
Sampling Date	7-May-96		7-May-96		9-May-96		9-May-96		13-May-96		15-May-96		15-May-96		21-May-96	
Toluene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	2	J
trans-1,2-Dichloroethene	NA		NA		NA		NA		NA		NA		NA		NA	
trans-1,3-Dichloropropene	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Trichloroethene	790	ER	760	D	530	ER	570	D	330		6	J	1	J	12	U
Trichlorofluoromethane	NA		NA		NA		NA		NA		NA		NA		NA	
Vinyl chloride	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U
Xylene (total)	12	U	60	UR	24	U	36	UR	25	U	12	U	12	U	12	U

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Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From DPT Groundwater Investigation
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q00107	U4Q00205	U4Q00205D	U4Q00207	U4Q00307	U4Q00310	U4Q00403	U4Q00418	U4Q00426
Lab ID	MA961001	MA979002	MA979003	MA979004	MA984001	MA984002	MA913001	MB007002	MB007003
Sampling Date	21-May-96	23-May-96	23-May-96	23-May-96	24-May-96	24-May-96	13-May-96	28-May-96	28-May-96
1,1,1-Trichloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,1,2-Trichloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,1-Dichloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,1-Dichloroethene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,2-Dibromo-3-chloropropane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,2-Dibromoethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,2-Dichlorobenzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,2-Dichloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,3-Dichlorobenzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
1,4-Dichlorobenzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
2-Butanone	12 UR	12 UR	12 UR	12 UR	12 UR	12 UR	750 UR	5 UR	5 UR
2-Chloroethylvinylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	12 U	12 U	12 U	12 U	12 U	12 U	750 U	5 U	5 U
4-Methyl-2-pentanone	12 U	12 U	12 U	12 U	12 U	12 U	750 U	5 U	5 U
Acetone	170 J	16 UR	10 R	12 R	32 R	40 UR	480 J	24 R	4 R
Benzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Bromochloromethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Bromodichloromethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Bromoform	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Bromomethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Carbon disulfide	1 J	5	0.9 J	8	2 U	3	150 U	0.4 J	1 U
Carbon tetrachloride	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Chlorobenzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Chloroethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Chloroform	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Chloromethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
cis-1,2-Dichloroethene	0.8 J	2 U	2 U	2 U	2 U	2 U	2300	1 U	1 U
cis-1,3-Dichloropropene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Dibromochloromethane	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2 U	2 U	2 U	2 U	2 U	2 U	150 U	1 U	1 U

Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From DPT Groundwater Investigation
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q00107		U4Q00205		U4Q00205D		U4Q00207		U4Q00307		U4Q00310		U4Q00403		U4Q00418		U4Q00426	
Lab ID	MA961001		MA979002		MA979003		MA979004		MA984001		MA984002		MA913001		MB007002		MB007003	
Sampling Date	21-May-96		23-May-96		23-May-96		23-May-96		24-May-96		24-May-96		13-May-96		28-May-96		28-May-96	
Methylene chloride	5	U	5	U	5	U	5	U	5	U	5	U	300	U	2	U	2	U
Styrene	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U
Tetrachloroethene	7		2	U	2	U	2	U	2	U	2	U	150	U	0.6	J	2	
Toluene	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U
trans-1,2-Dichloroethene	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U
trans-1,3-Dichloropropene	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U
Trichloroethene	10		2	U	2	U	2	U	2	U	2	U	290		1	U	0.7	J
Trichlorofluoromethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Vinyl chloride	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U
Xylene (total)	2	U	2	U	2	U	2	U	2	U	2	U	150	U	1	U	1	U

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Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From DPT Groundwater Investigation Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q00504				U4Q00802		U4Q00803		U4Q00805		U4Q01004		U4Q01011		U4Q01109		U4Q01202	
Lab ID	MB007004		MB007004DL		MA919002		MB031004		MB031005		MA944001		MB031003		MB031001		MB063001	
Sampling Date	29-May-96		29-May-96		14-May-96		3-Jun-96		3-Jun-96		16-May-96		1-Jun-96		31-May-96		4-Jun-96	
1,1,1-Trichloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,1,2,2-Tetrachloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,1,2-Trichloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,1-Dichloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,1-Dichloroethene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,2-Dibromo-3-chloropropane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,2-Dibromoethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,2-Dichlorobenzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,2-Dichloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,2-Dichloroethene (total)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2-Dichloropropane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,3-Dichlorobenzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
1,4-Dichlorobenzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
2-Butanone	5	UR	62	UR	5	UR	10	UR	5	UR	5	UR	6200	UR	10	UR	5	UR
2-Chloroethylvinylether	NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Hexanone	5	U	62	UR	5	U	10	U	5	U	5	U	6200	U	10	U	5	U
4-Methyl-2-pentanone	5	U	62	UR	5	U	10	U	5	U	5	U	6200	U	10	U	5	U
Acetone	7	R	53	DR	2	R	71	J	24	J	3	R	2200	R	29	J	4	R
Benzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Bromochloromethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Bromodichloromethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Bromoform	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Bromomethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Carbon disulfide	0.5	J	12	UR	1	U	1	J	2		10		1200	U	0.8	J	1	U
Carbon tetrachloride	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Chlorobenzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Chloroethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Chloroform	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Chloromethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
cis-1,2-Dichloroethene	2		12	UR	1	U	5		1	U	12		1200	U	2		1	U
cis-1,3-Dichloropropene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Dibromochloromethane	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Dichlorodifluoromethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U

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Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From DPT Groundwater Investigation
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q00504				U4Q00802		U4Q00803		U4Q00805		U4Q01004		U4Q01011		U4Q01109		U4Q01202	
Lab ID	MB007004		MB007004DL		MA919002		MB031004		MB031005		MA944001		MB031003		MB031001		MB063001	
Sampling Date	29-May-96		29-May-96		14-May-96		3-Jun-96		3-Jun-96		16-May-96		1-Jun-96		31-May-96		4-Jun-96	
Methylene chloride	2	U	25	UR	2	U	4	U	2	U	2	U	2500	U	4	U	2	U
Styrene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Tetrachloroethene	290	ER	280	D	1	U	17		1	U	1	U	10000		6		1	U
Toluene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
trans-1,2-Dichloroethene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
trans-1,3-Dichloropropene	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Trichloroethene	4		4	DR	1	U	8		4		5		25000		4		0.7	J
Trichlorofluoromethane	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Vinyl chloride	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U
Xylene (total)	1	U	12	UR	1	U	2	U	1	U	1	U	1200	U	2	U	1	U

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Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From **DPT Groundwater Investigation**
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q01202D		U4Q01205		U4Q01302	
Lab ID	MB063002		MB063003		MB063004	
Sampling Date	4-Jun-96		4-Jun-96		5-Jun-96	
1,1,1-Trichloroethane	1	U	1	U	2	U
1,1,2,2-Tetrachloroethane	1	U	1	U	2	U
1,1,2-Trichloroethane	1	U	1	U	2	U
1,1-Dichloroethane	1	U	1	U	2	U
1,1-Dichloroethene	1	U	1	U	2	U
1,2-Dibromo-3-chloropropane	1	U	1	U	2	U
1,2-Dibromoethane	1	U	1	U	2	U
1,2-Dichlorobenzene	1	U	1	U	2	U
1,2-Dichloroethane	1	U	1	U	2	U
1,2-Dichloroethene (total)	NA		NA		NA	
1,2-Dichloropropane	1	U	1	U	2	U
1,3-Dichlorobenzene	1	U	1	U	2	U
1,4-Dichlorobenzene	1	U	1	U	2	U
2-Butanone	5	UR	5	UR	12	UR
2-Chloroethylvinylether	NA		NA		NA	
2-Hexanone	5	U	5	U	12	U
4-Methyl-2-pentanone	5	U	5	U	12	U
Acetone	10	R	15	R	22	R
Benzene	1	U	1	U	2	U
Bromochloromethane	1	U	1	U	2	U
Bromodichloromethane	1	U	1	U	2	U
Bromoform	1	U	1	U	2	U
Bromomethane	1	U	1	U	2	U
Carbon disulfide	1	U	0.3	J	2	U
Carbon tetrachloride	1	U	1	U	2	U
Chlorobenzene	1	U	1	U	2	U
Chloroethane	1	U	1	U	2	U
Chloroform	1	U	1	U	2	U
Chloromethane	1	U	1	U	2	U
cis-1,2-Dichloroethene	1	U	1	U	2	U
cis-1,3-Dichloropropene	1	U	1	U	2	U
Dibromochloromethane	1	U	1	U	2	U
Dichlorodifluoromethane	NA		NA		NA	
Ethylbenzene	1	U	1	U	2	U

Appendix L(c). Summary of Off-Site Laboratory Groundwater Analytical Results - From DPT Groundwater Investigation
Operable Unit 4

OU4 Interim Remedial Action
Naval Training Center, Orlando
Orlando, FL

Sample ID	U4Q01202D		U4Q01205		U4Q01302	
Lab ID	MB063002		MB063003		MB063004	
Sampling Date	4-Jun-96		4-Jun-96		5-Jun-96	
Methylene chloride	2	U	2	U	5	U
Styrene	1	U	1	U	2	U
Tetrachloroethene	1	U	6		2	U
Toluene	1	U	1	U	2	U
trans-1,2-Dichloroethene	1	U	1	U	2	U
trans-1,3-Dichloropropene	1	U	1	U	2	U
Trichloroethene	0.6	J	2		2	U
Trichlorofluoromethane	NA		NA		NA	
Vinyl chloride	1	U	1	U	2	U
Xylene (total)	1	U	1	U	2	U

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APPENDIX M

SEDIMENT TREATABILITY ANALYTICAL RESULTS

Table M-1
Sediment Treatability Analytical Results

Focused Feasibility Study
Operable Unit 4
Naval Training Center
Orlando, Florida

Sample ID	U4D01002	U4D01003	U4D01403
Methane (mg/ℓ)	0.373	21.977	0
Ethylene (mg/ℓ)	0	0.02	0
Ethane (mg/ℓ)	0.006	0.079	0
Nitrate (mg/kg)	< 1.3	< 1.3	< 1.3
Phosphate (mg/kg)	< 5	< 5	< 5
Chloride (mg/kg)	5	10	35
Sulfate (mg/kg)	< 16.3	< 19.0	< 27.3
Sulfide (mg/kg)	6.5	76.0	383
Ammonia (mg/kg)	< 5	< 5	< 5
Total organic carbon (mg/kg)	41,700	21,600	222

Notes: ID = identification.
mg/ℓ = milligrams per liter.
mg/kg = milligrams per kilogram.
< = less than.